COMPREHENSIVE GROUNDWATER MONITORING EVALUATION

GME - 2019

CARPENTER TECHNOLOGY CORPORATION

PAD 00 234 4315

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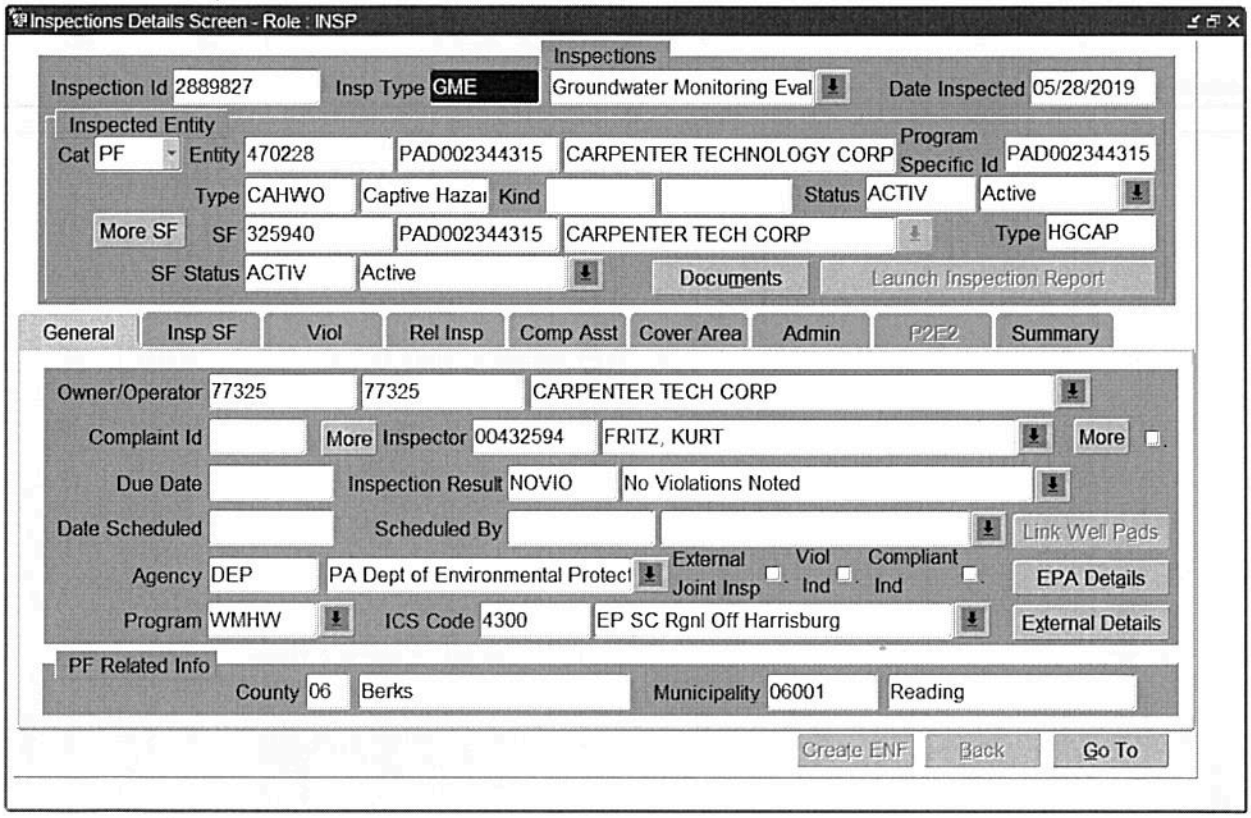
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TITLE:	GME - 2019
FACILITY:	CARPENTER TECHNOLOGY CORPORATION
ID #:	PAD 00 234 4315
COUNTY:	BERKS
INSPECTION DATE:	May 28, 2019
TECHNICAL REVIEWER:	Kurt S. Fritz Geologic Specialist
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2.0 INTRODUCTION

Carpenter Technology Corporation (Carpenter) is located at 101 West Bern Street, Reading, Pennsylvania 19612-4662, which is in the city of Reading and Muhlenberg Township, Berks County. This part of Berks County at latitude 40° 01′ 24″ North and longitude 75° 56′ 26″ West is situated within the Great Valley Section of the Valley and Ridge Physiographic Province.

The underlying geology beneath the facility is the Lehigh Valley Sequence, Allentown Formation. This formation consists of a medium gray dolomite and impure limestone with dark gray chert stringers and nodules, some oolite and sharpstone conglomerate. Maximum thickness is about 2,000 feet with good subsurface drainage beneath a poorly drained surface allowing the common occurrences of sinkholes. Solution channels measured in several of the monitoring wells were 6 to 13.5 inches wide. The southern edge of the facility overlies the Stonehenge Formation, which is a gray, finely crystalline limestone and dark gray silty limestone which contains numerous flat pebble breccia beds and shaly interbeds. The maximum thickness of this formation is 1,500 feet with good subsurface drainage favoring sinkhole development.

Carpenter manufactures specialty steel and alloy products. Most of Carpenter's buildings located on the west shore area were built over old landfills, (Areas 1 & 2). These old unlined landfills contain slag and other wastes generated by this facility's east shore area approximately between 1918

and 1979. During the manufacturing processes many different kinds of solvents were used and discarded as waste. During day-to-day operations other hazardous wastes were also generated, with some being reprocessed on site, reclaimed at Inmetco, or transported off-site for disposal.

There were fifty-one (51) Solid Waste Management Units (SWMUs) located on this facility's 104 acres which straddles the Schuylkill River. Also, located on the property are closed hazardous waste units and other waste management units such as: Hazardous Waste Storage Area, Hazardous Waste Tanks, a multitude of underground waste solvent transfer lines removed from service in 1987, surface impoundment and pile, a Waste Water Treatment Plant and an active residual waste landfill/processing area (Hartman Tract Landfill). Previous investigations (80's & 90's) at this facility have concluded that the groundwater was impacted, and corrective actions were required.

The floor drains at this facility are either connected to the on-site wastewater treatment plant, which can recycle the wastewater for reuse with any excess processed water being discharged into the Schuylkill River, NPDES Permit PA0013129, or if untreated the wastewater is piped to the municipal sewage treatment plant. The facility's storm water collection system discharges directly into the Schuylkill River.

The Schuylkill River was classified as a Scenic River and is the primary water supply source for several towns and cities downstream from this facility. During times of drought this river can supply the City of Philadelphia with only 80% of its needs. There are numerous water supply wells and large businesses groundwater production wells along both sides of the Schuylkill River that reduces the river's base flow by drawing down the groundwater table. The most recent City of Philadelphia's "The State of the Schuylkill Watershed" report indicates that most of the water reaching Philadelphia's water supply intake is from treatment plant discharge waters and surface water runoff. Currently, there are incentives to enhance wastewater discharges and to mitigate stormwater runoff flowing into the Schuylkill River from Reading downstream to Philadelphia.

Muhlenberg Township has numerous municipal water supply wells located northeast of the Hartman Tract Landfill. Drawdown from two of these wells (8 & 9) and a private well located in the same vicinity have increased over the years; thereby, effectively pulling more water from the Schuylkill

River which now is encompassing an area beneath the Hartman Tract Landfill.

Carpenter is currently operating a pilot groundwater recovery system and leachate trench collection system as part of their Corrective Action (CA) permit. Within the RFI it was recommended that these two systems should be expanded both horizontal and vertical between the closed landfills and Schuylkill River. This expansion of these systems was to be part of the Corrective Measures Study (CMS). The reasoning behind this was to create a groundwater barrier to impede the migration of VOCs and leachate emanating from this facility before entering the base flow of the Schuylkill River. Also, the recommended CMS would fully evaluate the bedrock aquifer and determine the concentrations of VOCs at the bottom of the aquifer.

While operating the pilot groundwater recovery system and leachate collection trench Carpenter is still unable to meet their CA permit Contaminant of Concern (COC) limits set by the U.S. EPA Region III. These COC permit limits can be found within the March 25, 1991, effective May 1, 1991 CA permit (I.D.# PAD 00 234 4315). An approved Permit Modification effective November 2, 1998 to October 31, 2008 was issued but now this permit is automatically extended every 10 years until Carpenter decides to option out of the RCRA program.

Groundwater monitoring wells around the Hartman Tract landfill detected Chromium and other constituents above regulatory levels. Carpenter hired Malcolm Pirnie, Inc. to conduct a groundwater investigation for the Hartman Tract Landfill. Since Carpenter made a request to increase the MSC for Molybdenum this investigation report was sent to Pennsylvania Department Environmental Protection's (DEP) Central Office formerly PA DER.

During the 2016 GME report writeup the following documents and news concerning this facility were discovered:

- An interim final Environmental Indicator (EI) Determination was done 2/5/99 without doing the CMS
- An EPA email indicates that a letter exists pertaining to the CMS but a copy of the letter cannot be found in DEP's file room
- An EPA email also mentioned that a Statement of Basis (draft? 1995) was completed for this facility, but again no copy of it could be found on the internet or in DEP's file room
- February 24, 2012 news release indicating that Carpenter purchased the former Dana Corp. 50 acres property across the river from the VOC plume for ~$6 million, EPA ID#: PAD002343630
- February 12, 2016 news release, Carpenter moved their headquarters to Philadelphia
- Dames & Moore, RFI consultant, was purchased by URS Corp. which was then purchased by AECOM 7/14/2014
- Malcolm Pirnie performed a PENTOXSD Simulation for Carpenter and submitted a report October 25, 2010, with an EPA January 13, 2011 request for clarification email which resulted in a revised PENTOXSD Simulation, March 1, 2011

The time between the 2016 GME report and the 2019 GME sampling event was uneventful.

3.0 List of Filed Documents found in DEP's Southcentral Regional Office (SCRO)

The following chronology represents a historical synopsis of the regulatory activities at this facility.

1890 - East shore area began operations

Mar. 15, 1976 - Hartman Tract Slag Disposal Area Permit Application

July 05, 1977 - Revised March 15, 1976 Hartman Tract Slag Disposal Permit Application

July 06, 1981 - DER letter (Disposal Facility Daily Log regarding amount of waste materials generated)

Apr. 03, 1985 - DER route slip (Attached quantity problems on several Uniform Hazardous Waste Manifest dated: March 1, 8 and 11, 1985)

June 07, 1985 - DER route slip (Attached quantity problems on several Uniform Hazardous Waste Manifest dated: May 13, 15 and 17, 1985)

July 03, 1985 - Carpenter letter (Roadway dust suppressant - Slag Fill Area)

July 26, 1985 - DER letter (Observation of well installation Well #2 and inspection of wells 3 & 4 that were installed on July 22, 1985)

Aug. 27, 1985 - EPA letter to Carpenter (Request for information regarding compliance status of the interim status ground water monitoring requirements)

Sep. 20, 1985 - Carpenter response letter to September 6, 1985 NOV-Corrective Action Document

Sep. 25, 1985 - Carpenter Closure Plan for Waste Pile prepared September 1985 and Emergency Impoundment prepared August, 1985

Oct. 02, 1985 - DER letters to Carpenter, Department of Public Works City of Reading and Public Notice (Acknowledge receipt of Closure Plan dated September 25, 1985)

Oct. 07, 1985 - DER review memo (Closure Plans)

Nov. 18, 1985 - DER review memo (Closure Plans)

Nov. 27, 1985 - DER comment letter regarding Closure of Emergency Surface Impoundment and Waste Pile

Dec. 1985 - A.T. KEARNEY, INC. and Harding Lawson Associates submitted Preliminary Assessment Report

Dec. 16, 1985 - DER route slip (Question regarding weight amount on a Uniform Hazardous Waste Manifest dated December 5, 1985)

Dec. 27, 1985 - Carpenter letter (Response to DER November 27, 1985 transmittal regarding Closure of Emergency Surface Impoundment and Waste Pile)

Jan. 08, 1986 - DER letter (Acknowledgement of December 27, 1985 Carpenter letter)

Jan. 10, 1986 - Carpenter letter (Response to DER inquiry concern waste shipment)

Jan. 13, 1986 - Carpenter letter (Financial Responsibility Requirement Pollution Liability Coverage update with attached letters dated Nov. 7, 1985, Oct. 18, 1985, Aug. 20, 1985, Aug. 8, 1985, Aug. 9, 1985, Jun. 21, 1985, Apr. 3, 1985, Sep. 24, 1984 and Sep. 9, 1985)

Jan. 13, 1986 - EPA letter (Comments on Carpenter Closure Plan)

Mar. 06, 1986 - Facility Analysis

Apr. 1986 - Revised Preparedness, Prevention and Contingency Plan

May 08, 1986 - Carpenter letter (Closure Cost Worksheet) enclosures missing

May 14, 1986 - DER memo (Carpenter Closure Cost Estimate)

June 19, 1986 - DER Hazardous Waste Management Facility Inspection Checklist for Compliance with

Interim Status Standards Covering Ground-Water Monitoring

July 03, 1986 - DER comment letter (Revised Part B for Hazardous Waste Tank and Container Storage Facility)

Aug. 12, 1986 - Carpenter's Collateral Bond for Hazardous Waste Facility

Sep. 12, 1986 - Part A Hazardous Waste Application Volumes I & II

Sep. 12, 1986 - Carpenter's Waste Analysis Plan

Sep. 23, 1986 - DER route slip (Financial Assurance, Collateral Bond Endorsements and Pollution Legal Liability Insurance form)

Sep. 30, 1986 - DER letter (Granting permit by rule status for the thermal dryer and modified tank)

Oct. 09, 1986 - DER response to Quality Assurance Part B Permit Application

Dec. 05, 1986 - Notice of Violation (Hazardous Waste Bonding deficient)

Dec. 31, 1986 - Carpenter response letter to December 5, 1986 NOV

Jan. 09, 1987 - Carpenter letter (Response to DER request regarding Letter of Credit)

Jan. 27, 1987 - Carpenter letter (Hazardous Waste Facility Certificate of Liability Insurance)

Feb. 23, 1987 - DER response letter to Carpenter's December 31, 1986 letter regarding December 5, 1986 NOV (NOV rescinded)

Mar. 02, 1987 - DER Route slip (Collateral Bond for Hazardous Waste Facility)

June 09, 1987 - Carpenter letter (Waste Pile Closure Northern Portion)

June 11, 1987 - Leaking solvent line report

June 11, 1987 - Carpenter letter (Hazardous Waste Spill Report waste solvent of 1, 1, 1 trichloroethane, napthol and waste oils)

June 19, 1987 - Carpenter letter (EPA Notification of Hazardous Waste Activity)

July 01, 1987 - DER memo (Collateral Bond for Hazardous Waste Facility, DER July 1, 1987 memo, September 4, 1985 Irrevocable Standby Letter of Credit with attached November 6, 1985, September 2, 1986 and May 26, 1987 to September 15, 1988 Letters of Amendment)

July 06, 1987 - DER letter (Carpenter may proceed with final closure of the waste pile facility)

July 17, 1987 - DER letter (Request of proof for interim status hazardous waste facility)

July 27, 1987 - DER comment letter (June 11, 1987 Hydrogeologic Assessment and Groundwater Sampling Plan)

Aug. 07, 1987 - Certificate of Insurance April 1, 1987 to April 1, 1988

Aug. 19, 1987 - DER letter (Response to Carpenter's July 6, 1987 letter to Governor Robert P. Casey)

Aug. 25, 1987 - DER route slip (Carpenter August 21, 1987 letter with Hazardous Waste Facility Certificate of Liability Insurance May 20, 1987 to May 20, 1988)

Sep. 09, 1987 - DER internal memo (Final Closure of the Waste Pile Area adjacent to the waste water treatment facility) Attached Carpenter letters dated: August 21, 1987, June 9, 1987 and February 4, 1987; DER letter and Inspection Report both dated February 13, 1987

Sep. 18, 1987 - DER Hazardous Waste Inspection Report (Confirm final closure and stabilization of the waste pile area adjacent to the waste water treatment facility)

Sep. 30, 1987 - DER route slip (Carpenter September 30, 1987 letter with revised Hazardous Waste

Facility Certificate of Liability Insurance May 20, 1987 to May 20, 1988)

Oct. 05, 1987 - Waste Solvent Storage Tank Closure Plan

Oct. 22, 1987 - DER comment letter (Hydrogeologic Assessment and Groundwater Sampling/Analysis Plan)

Nov. 02, 1987 - Carpenter letter (Soil Gas Survey Results submitted by Target Environmental Services, Inc. and Proposed Well locations to be installed November 16, 1987 by Garber and Sons under the direction of Dames & Moore)

Dec. 07, 1987 - Installation of MW87-01 the site up-gradient monitoring point

Dec. 09, 1987 - Installation of Monitoring Wells 87-02, 87-03, and 87-04

Dec. 16, 1987 - DER review memo (New Hazardous Waste Solvent Storage Tank Installation)

Apr. 14, 1988 - DER letter (Request for additional information to the Permit-By-Rule modification)

Apr. 15, 1988 - DER review memo (Modification to Permit-By-Rule Units)

Apr. 26, 1988 - DER review memo (Amendment to Part B - Installation of New Tank)

Apr. 28, 1988 - DER letter (Approval of Closure Plan for spent hazardous waste solvent storage tank)

May 04, 1988 - DER Inspection Report (Groundwater sampling event)

May 10, 1988 - Carpenter letter (Designation of authorized report signer, Thomas A. Dickerson)

June 07, 1988 - Carpenter letter (Hazardous Waste Facility Certificate of Liability Insurance May 20, 1988 to May 20, 1989)

June 14, 1988 - DER letter (Site Visit to observe closure of the waste solvent storage tank)

June 15, 1988 - Dames & Moore submitted a report that indicated a VOC source near the RCRA impoundment

June 16, 1988 - DER memo (Amendment to June 7, 1988 Letter of Credit)

June 28, 1988 - Carpenter letter (Response to DER's June 14, 1988 letter)

July 01, 1988 - Carpenter called reporting (Liquid Potassium Hydroxide Spill)

July 01, 1988 - DER letter (Insurance Requirement)

Aug. 03, 1988 - DER letter (Insurance Requirement)

Aug. 15, 1988 - Carpenter letter (Response to August 3, 1988 request a copy of Carpenter's Pollution Legal Liability policy and ACORD-25 for general liability coverage)

Aug. 19, 1988 - DER memo (Carpenter Groundwater Assessment)

Aug. 23, 1988 - DER memo (Comments regarding Insurance Policy attached: DER route slip August 18, 1988 and Pollution Legal Liability Declarations form)

Sep. 06, 1988 - DER memo (Kolene spill)

Sep. 07, 1988 - Carpenter letter (Hazardous Waste Spill Report Kolene)

Sep. 08, 1988 - National Union Fire Insurance Company of Pittsburgh, PA Endorsements #10 & 11 to Carpenter

Sep. 22, 1988 - Notice of Violation (Hazardous waste spill of Kolene)

Oct. 05, 1988 - DER memo (Remediation, Insurance and Bonding)

Oct. 17, 1988 - Marisol, Incorporated letter to New Jersey DEP, Carpenter and PaDER (Correction to October 7, 1988 Uniform Hazardous Waste Manifest)

Oct. 31, 1988 - Dames & Moore submitted the Hydrogeologic Investigation Draft Final Report

Nov. 04, 1988 - DER Hazardous Waste Inspection Report (Confirm closure of the Emergency Surface Impoundment)

Jan. 30, 1989 - Carpenter response to September 22, 1988 NOV

Feb. 10, 1989 - DER internal memo (Hazardous waste spill of sodium hydroxide)

Feb. 13, 1989 - Carpenter letter (Hazardous Material Spill Report sodium hydroxide)

Feb. 14, 1989 - Notice of Violation (Hazardous waste spill of sodium hydroxide)

Feb. 24, 1989 - Dames & Moore submitted their Pump Test Procedures and September 28, 1988 and January 20, 1989 monitoring well logs for MWs 88-01, 89-01, and 89-02

Mar. 09, 1989 - DER letter proposing a settlement for hazardous waste spills, August 29, 1988 and February 8, 1989, and failure to report in a timely manner

Mar. 30, 1989 - Carpenter's three signed copies of the settlement proposal agreement

Apr. 13, 1989 - DER Report of Payment Due (Carpenter March 28, 1989 check no. 386043)

May 05, 1989 - Carpenter letter (Proposed procedure to clean blocked Kolene burner tubes)

May 12, 1989 - Carpenter letter with attached copies of letters dated November 1, 1988 (Certification of Surface Impoundment Closure) and November 8, 1988 (Copy of closure inspection report dated November 4, 1988)

May 15, 1989 - Phase I Report (Ground Water Recovery System by Dames & Moore)

June 06, 1989 - DER draft letter (Hazardous Waste Part B Application insurance documentation deficient)

June 13, 1989 - DER letter (Hazardous Waste Part B Application insurance documentation deficient)

Aug. 15, 1989 - Carpenter called reporting (DER verbal approval to backfill excavated area of the hydrofluoric acid leak Tank T-533)

Aug. 16, 1989 - DER Hazardous Waste Management Facility Inspection Checklist for Compliance with Interim Status Standards Covering Ground-Water Monitoring (Forms 4 & 5)

Aug. 17, 1989 - Carpenter letter (Hazardous Material Spill Report Hydrofluoric acid)

Sep. 14, 1989 - Carpenter letter (Attached photographs of the August 9, 1989 Hydrofluoric acid spill area near building 48)

Oct. 23, 1989 - Carpenter memo (Schedule for the Groundwater Sampling/Analysis Plan)

Dec. 15, 1989 - Carpenter letter (Revised Hazardous Waste Facility Certificate of Liability Insurance)

Dec. 27, 1989 - Carpenter letter (Hazardous Material Spill Report Spent Nitric-Hydrofluoric acid)

Jan. 23, 1990 - DER letter (Amendment to Letter of Credit)

Mar. 09, 1990 - Hazardous Waste Insurance Status Report

Mar. 19, 1990 - DER letter (Approval of the January 29, 1990 Groundwater Recovery System Pilot Study with instructions to complete Air Quality Control forms)

May 09, 1990 - DER letter (Request for Insurance Documentation)

June 08, 1990 - Carpenter Hazardous Waste Permit - Insurance Updates (Attached May 30, 1990 Certificate of Insurance, June 27 & 28,

1990 and July 9 & 27, 1990 DER notes of Tanks)

June 28, 1990 - Carpenter fax (Testing of storage tanks)

July 23, 1990 - Carpenter memo (July 2, 1990 Certificate of Insurance)

July 26, 1990 - EPA letter (CME short falls)

Aug. 17, 1990 - USEPA issued a draft permit and fact sheet

Sep. 19, 1990 - Review memo on May 8, 1990 CME

Sep. 28, 1990 - The Law Office of Dechert, Price, and Rhoads of Philadelphia comment letter regarding the draft permit

Oct. 10, 1990 - DER letter (Amendment to letter of Credit with attached Meridian Bank September 28, 1990 letter)

Nov. 19, 1990 - Carpenter letter to EPA (Class I Permit Modification)

Jan. 28, 1991 - EPA letter to Carpenter (RCRA Air Emission Standards)

Feb. 01, 1991 - DER letter (Approval with conditions to the Oil Discharge Investigation Work Plan)

Mar. 18, 1991 - Carpenter letter to EPA (Comments regarding EPA's January 28, 1991 letter)

Mar. 20, 1991 - Laboratory Quality Assurance Plans by Dames & Moore

Mar. 25, 1991 - EPA issued a RCRA Corrective Action Permit No. PAD002344315 with an effective date of May 1, 1991 to Apr. 30, 2001

May 07, 1991 - Carpenter letter (Hydrochloric acid Tank T-60 Leak)

May 22, 1991 - Carpenter Form 10-13-B (Forwarding copy of DER February 20, 1990 letter regarding Pilot Study to the Groundwater Recovery System)

July 30, 1991 - Carpenter letter (Hartman Track Residual Waste Landfill Disposal Facility Log)

Aug. 30, 1991 - Carpenter letter (Hazardous Waste Spill Report)

Oct. 17, 1991 - Carpenter response to October 8, 1991 NOV

Oct. 31, 1991 - Carpenter letter to EPA (RFI Work Plan Volumes 1 & 2)

Nov. 1, 1991 - Laboratory Quality Assurance Plans for the Carpenter RFI

Dec. 11, 1991 - Dames & Moore cover letter (Report detailing the Soil Boring Program Building 61 / West Shore Tank Farm and corrections to observation well 91-01 at the Carpenter facility) **Report is missing**

Dec. 20, 1991 - Carpenter letter to EPA (Physical alteration in SWMU17 & portion 21-3)

Jan. 10, 1992 - Carpenter letter to EPA (Physical alteration in SWMU18)

Jan. 14, 1992 - Carpenter letter (Hartman Track Residual Waste Landfill Disposal Facility Log)

Jan. 20, 1992 - Carpenter letter to EPA (Correction to January 10, 1992 Physical alteration in SWMU18)

Mar. 12, 1992 - Carpenter's responses and comments to EPA's comments regarding the RFI Work Plan

Mar. 23, 1992 - Copy of October 5, 1987 Hazardous Waste Solvent Storage Tank Closure Plan arrived at DER SCRO for review

Arp. 10, 1992 - Carpenter letter (Hartman Track Residual Waste Landfill Disposal Facility Log)

Apr. 23, 1992 - Carpenter letter amending the March 18, 1992 Closure Plan for a Hazardous Waste Solvent Storage Tank

May 26, 1992 - Carpenter letter to EPA (Three copies of RCRA Facility Investigation (RFI) Work Plan

June 01, 1992 - Carpenter's RCRA Facility Investigation Work Plan Volumes 1 & 2 by Dames & Moore approved by EPA July 1, 1992

June 25, 1992 - DER approval letter with conditions to Carpenter regarding the October 5, 1987 amended April 23, 1992 Closure Plan to a Hazardous Waste Solvent Storage Tank

June 30, 1992 - Carpenter letter (Hartman Track Residual Waste Landfill Disposal Facility Log)

July 15, 1992 - Carpenter letter (Hartman Track Residual Waste Landfill Disposal Facility Log)

Aug. 31, 1992 - Quarterly progress report (Mobilization of equipment, complete Engineering Assessment, three staff gauges placed in Schuylkill River, surface water & sediments sampled, constituent sampling at SWMUs 1, 2, 9 and 28, completed soil boring program, surface soil samples collected at SWMUs 1 and 9, installation of MWs shallow 92-02, 92-03, 92-07, 92-08 and 92-10; deep 92-01, 92-02D, 92-04 and 92-09; piezometers 92-11 and 92-12, Pressure transducers placed in 87-03 and 87-04, all samples were sent to Lancaster Laboratories and Carpenter lab.)

Sep. 02, 1992 - Carpenter letter (Certification Report regarding the closure activities of a hazardous waste solvent storage tank by Spotts, Stevens and McCoy, Inc. dated August 25, 1992)

Oct. 12, 1992 - Carpenter letter to EPA (Addendum to the June 1, 1992 RCRA Facility Investigation Work Plan Volume 2) **Addendum is missing**

Oct. 28, 1992 - Carpenter letter (Hartman Track Residual Waste Landfill Disposal Facility Log)

Nov. 20, 1992 - Carpenter letter to EPA (Notification of Physical Alteration in SWMU 1 and 9)

Dec. 14, 1992 - Carpenter letter to EPA (Quarterly progress report)

Dec. 16, 1992 - Carpenter letter to EPA (RFI Draft Interim Report SWMUs 1 and 9)

Jan. 28, 1993 - Carpenter letter (Hartman Track Residual Waste Landfill Disposal Facility Log)

Jan. 28, 1993 - Carpenter letter (1992 Annual Landfill Operations Report)

Feb. 15, 1993 - Carpenter letter (Part B Permit Amendment with attached August 21, 1987 Carpenter letter regarding Certification of Waste Pile Closure)

Mar. 10, 1993 - Carpenter letter (Second Certification Report regarding the closure activities of a hazardous waste solvent storage tank by Spotts, Stevens and McCoy, Inc. dated February 25, 1993)

May 14, 1993 - Notice of Violation (Improper Documentation)

May 19, 1993 - DER letter acknowledging Closure (Inspection on April 28, 1993 confirmed proper closure of a Solvent Storage Tank)

June 18, 1993 - Carpenter letter (Part B Permit Amendment and attached February 15, 1993 letter)

June 25, 1993 - Carpenter's RCRA Facility Investigation (RFI) Report Volumes 1, 2 and 3 by Dames & Moore

Nov. 18, 1993 - Carpenter letter (Bond, Labels, Sampling of Waste Streams and Permit by Rule)

Dec. 16, 1993 - Carpenter letter to EPA (Quarterly progress report regarding analytical results, hairline vertical cracks in SWMU9, EPA site tour and correspondence with EPA)

Dec. 28, 1993 - Carpenter letter (Radiological results prepared by Halliburton NUS Corporation)

Mar. 30, 1994 - Carpenter letter to EPA (Quarterly progress report regarding monitoring well 87-04D integrity) **elevated VOCs**

July 21, 1994 - DEP letter (Response to July 6, 1994 meeting, March 9, 1994 WWTP Waste Acid

Release and attached July 08, 1994 Carpenter letter)

Sep. 12, 1994 - DEP letter (Request for an application for permit modification of the Hartman Track Residual Waste Landfill)

Sep. 21, 1994 - Carpenter letter to EPA (Quarterly progress report)

Dec. 21, 1994 - Carpenter letter to EPA (Quarterly progress report)

Feb. 21, 1995 - Carpenter's response letter to USEPA's January 20, 1995 letter (**missing**) regarding the RFI report (Potential of workers being exposed to subsurface soils containing chromium)

Apr. 10, 1995 - Carpenter letter (Waste Characterization for Hartman Track Residual Waste Landfill)

Apr. 14, 1995 - DEP letter (Approval of attached March 30, 1995 Carpenter proposal to Close Hazardous Waste Oil Storage Tank and Reopen tank for storage of non-hazardous waste oil, prepared March 17, 1995 by Keystone Environmental Services, Inc.)

Aug. 28, 1995 - Carpenter letter to EPA (Groundwater System Operation by Dames & Moore)

Sep. 14, 1995 - DEP letter to PA Senator O'Pake (Addressing concerns of a private citizen)

Oct. 1995 - Phase I Permit Renewal Application for the Hartman Tract Landfill

Oct. 10, 1995 - Carpenter letter to EPA (Response comments to September 29, 1995 **draft** Statement of Basis)

Oct. 16, 1995 - Carpenter letter to EPA (Construction Plans for SWMU21-2 West Shore Fill Area No. 2)

Feb. 1996 - Revised Phase I Permit Application for the October 1995 Hartman Tract Landfill

Mar. 18, 1996 - DEP letter (Pollution Prevention / Source Reduction)

June 26, 1996 - Carpenter updated Part B Closure Plan Activities List

July 09, 1996 - DEP letters notifying Berks County Planning Commission and City of Reading of Carpenter's intent to close the hazardous waste container storage area

July 18, 1996 - Public Notice of Receipt of a Hazardous Waste Facility Closure Plan

Sep. 04, 1996 - DEP letter to Carpenter (Approving Closure Plan of the Hazardous Waste Container Storage Area)

Jan. 14, 1997 - Part B Closure Plan Container Storage Area

Feb. 13, 1997 - DEP follow-up letter of a February 04, 1997 Inspection (Confirm closure of hazardous waste container storage area)

July 10, 1997 - DEP letter (Administrative Deficiencies Draft Permit Conditions for Residual Waste Hartman Tract Landfill)

Oct. 10, 1997 - Carpenter letter to EPA (Construction Plans within SWMU21-3)

Dec. 12, 1997 - Carpenter letter to EPA (Construction Plans for SWMUs 2, 21-4 and 21-2)

Jan. 12, 1998 - Carpenter letter to EPA (Modifications to SWMU21-2, Bar Finishing Department)

Apr. 08, 1999 - DEP letter (Response to Carpenter January 20, 1999 new groundwater monitoring plan)

May 03, 1999 - Carpenter letter (Notification of Hazardous Waste Shipment)

June 18, 1999 - DEP Inspection Report - Residual Waste Generator

Aug. 31, 1999 - DEP Hazardous Waste Inspection Report

Jan. 11, 2000 - Major Permit Modification / Re-permitting Hartman Tract Landfill Permit No. 300635

Jan. 20, 2000 - Carpenter letter (New Groundwater Monitoring Plan)

Feb. 07, 2000 - DEP letter (Clarification of Permit Condition No. 2 for Hartman Tract Landfill Permit No. 300635)

June 16, 2000 - DEP Hazardous Waste Inspection Report

Dec. 26, 2000 - DEP letter (General landfill letter clarifying map requirements that should be submitted with next Annual Operations Report)

Jan. 09, 2001 - DEP letter (Approval of 2001 Fire Training)

Sep. 12, 2001 - EPA Permit Modification FOR CORRECTIVE ACTION AND WASTE MINIMIZATION UNDER THE HAZARDOUS AND SOLID WASTE AMENDMENTS OF 1984

Oct. 31, 2001 - Carpenter letter (Groundwater monitoring & recovery)

Dec. 12, 2001 - DEP letter (2002 Fire Training Approval)

Mar. 21, 2002 - EPA letter (Groundwater monitoring and financial assurance)

May 14, 2002 - DEP (General Inspection Report)

Dec. 31, 2002 - DEP letter (2003 Fire Training Approval)

Feb. 24, 2003 - Carpenter (DEP Form 26R Chemical Analysis of Residual Waste Annual Report by the Generator)

Apr. 28, 2005 - DEP (Inspection Report - Residual Waste Generator)

Feb. 24, 2006 - DEP (Hazardous Waste Inspection Report Generator)

Sep. 29, 2008 - DEP (Hazardous Waste Inspection Report Generator)

Jan. 15, 2009 - DEP letter (Reminder to Carpenter of annual financial assurance filing to be submitted by Jun 30, 2009)

June 29, 2009 - Carpenter application for Residual Waste Landfill Permit renewal #300635

Dec. 29, 2009 - DEP letter (Permit renewal granted for #300635 until Apr 10, 2010)

Jan. 04, 2010 - Carpenter letter (Proof of notification to Berks County for permit renewal)

Mar. 10, 2010 - Carpenter compilation of historic Form 26R

Apr. 05, 2010 - DEP letter (Permit renewal to Captive Slag and Refractory Residual Waste Landfill Permit No. 300635 is extended until April 09, 2020)

June 07, 2010 - Malcolm Pirnie, Inc. Groundwater Assessment Plan for (Carpenter Technology, Hartman Tract, Muhlenberg, PA)

June 24, 2010 - DEP letter (Hartman Tract Groundwater Assessment Plan request to enhance their consultant's Plan)

July 23, 2010 - Carpenter letter (Response to DEP June 24, 2010 letter)

Sep. 23, 2010 - Carpenter letter (Hartman Tract Landfill addition Plan elements)

Sep. 29, 2010 - DEP (Hazardous Waste Inspection Report Generator)

Jan. 20, 2011 - Carpenter (Form 26R Chemical Analysis of Residual Waste Annual Report by the Generator)

Feb. 2011 - Carpenter (Hartman Tract Landfill Groundwater Assessment Report)

June 17, 2011 - DEP Letter (Hartman Tract Landfill Groundwater Assessment Feb. 2011 Report)

Feb. 13, 2012 - Carpenter (Evaluation of Pennsylvania's Groundwater Standard for Molybdenum and the Derivation of an Alternative, Scientifically Supportable Value) sent to PaDEP's Central Office for review

Feb. 23, 2012 - Carpenter (DEP Form 26R Chemical Analysis of Residual Waste Annual Report by the Generator)

June 22, 2012 - DEP (Inspection Report - Residual Waste Landfill)

Sep. 05, 2012 - (Inspection Report - Residual Waste Landfill)

Dec. 21, 2012 - (Inspection Report - Residual Waste Landfill)

Dec. 21, 2012 - DEP (Hazardous Waste Inspection Report Generator)

Jan. 25, 2013 - Carpenter (DEP Form 26R Chemical Analysis of Residual Waste Annual Report by the Generator)

Mar. 27, 2013 - (Inspection Report - Residual Waste Landfill)

June 12, 2013 - (Inspection Report - Residual Waste Landfill)

June 26, 2013 - Carpenter Hartman Tract (2012 Operation Report)

Sep. 04, 2013 - DEP (Hazardous Waste Inspection Report Generator)

Sep. 04, 2013 - (Inspection Report - Residual Waste Landfill)

Dec. 26, 2013 - (Inspection Report - Residual Waste Landfill)

Feb. 26, 2014 - Carpenter (DEP Form 26R Chemical Analysis of Residual Waste Annual Report by the Generator)

Mar. 25, 2014 - (Inspection Report - Residual Waste Landfill)

June 19, 2014 - (Inspection Report - Residual Waste Landfill)

June 27, 2014 - Carpenter Hartman Tract (2013 Operation Report)

Dec. 02, 2014 - (Inspection Report - Residual Waste Landfill)

Feb. 16, 2015 - Carpenter (DEP Form 26R Chemical Analysis of Residual Waste Annual Report by the Generator)

Mar. 30, 2015 - (Inspection Report - Residual Waste Landfill)

June 22, 2015 - (Inspection Report - Residual Waste Landfill)

Sep. 28, 2015 - (Inspection Report - Residual Waste Landfill)

Dec. 22, 2015 - (Inspection Report - Residual Waste Landfill)

Mar. 30, 2016 - (Inspection Report - Residual Waste Landfill)

June 29, 2016 - (Inspection Report - Residual Waste Generator)

June 29, 2016 - (Inspection Report - Residual Waste Landfill)

June 29, 2016 - DEP (Hazardous Waste Inspection Report Generator)

Sep. 27, 2016 - (Inspection Report - Residual Waste Landfill)

Dec. 19, 2016 - (Inspection Report - Residual Waste Landfill)

Mar. 28, 2017 - (Inspection Report - Residual Waste Landfill)

May 26, 2017 - (Inspection Report - Residual Waste Landfill)

May 26, 2017 - DEP (Hazardous Waste Inspection Report Generator)

Sep. 28, 2017 - (Inspection Report - Residual Waste Landfill)

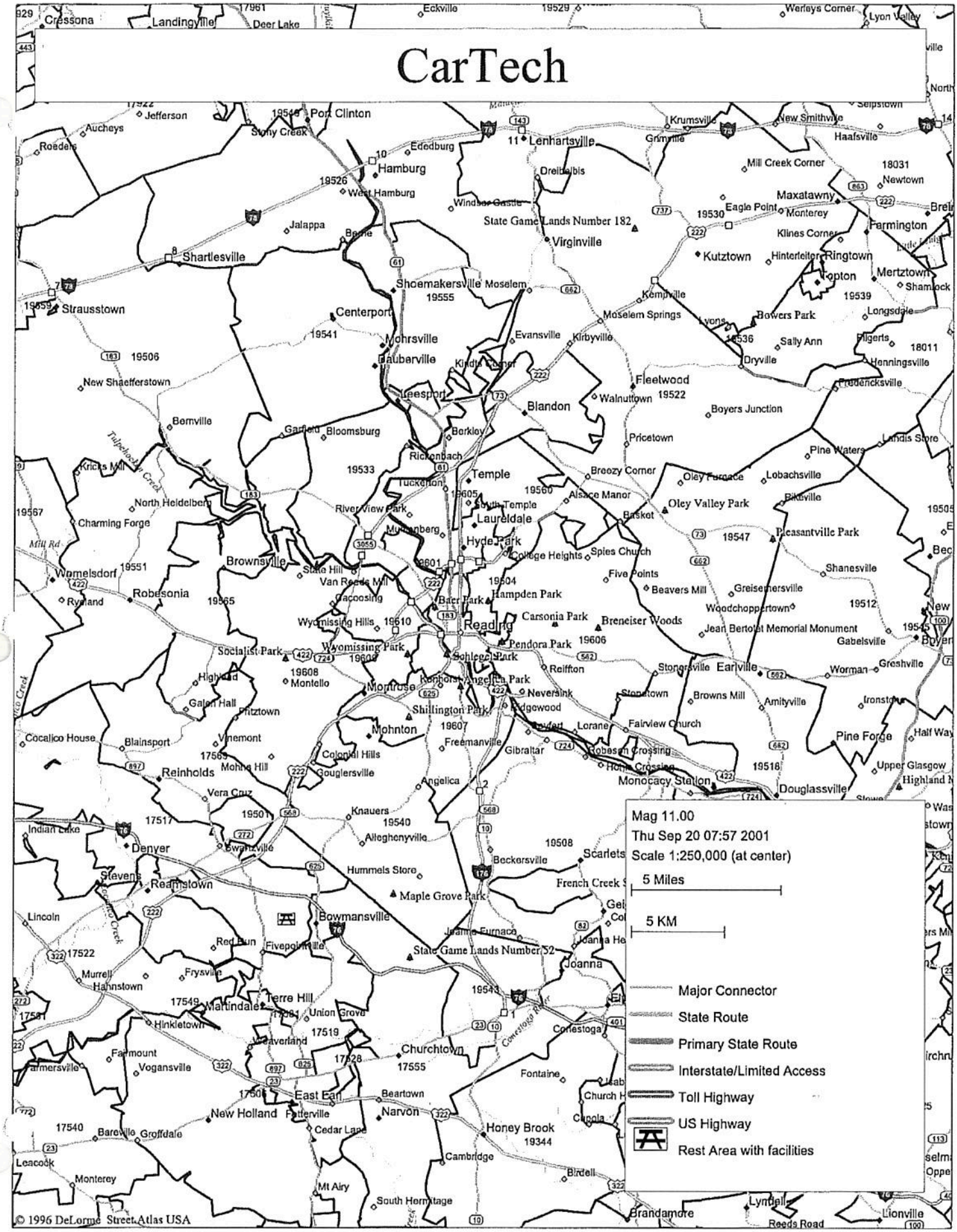
Dec. 14, 2017 - (Inspection Report - Residual Waste Landfill)

Mar. 14, 2018 - (Inspection Report - Residual Waste Landfill)

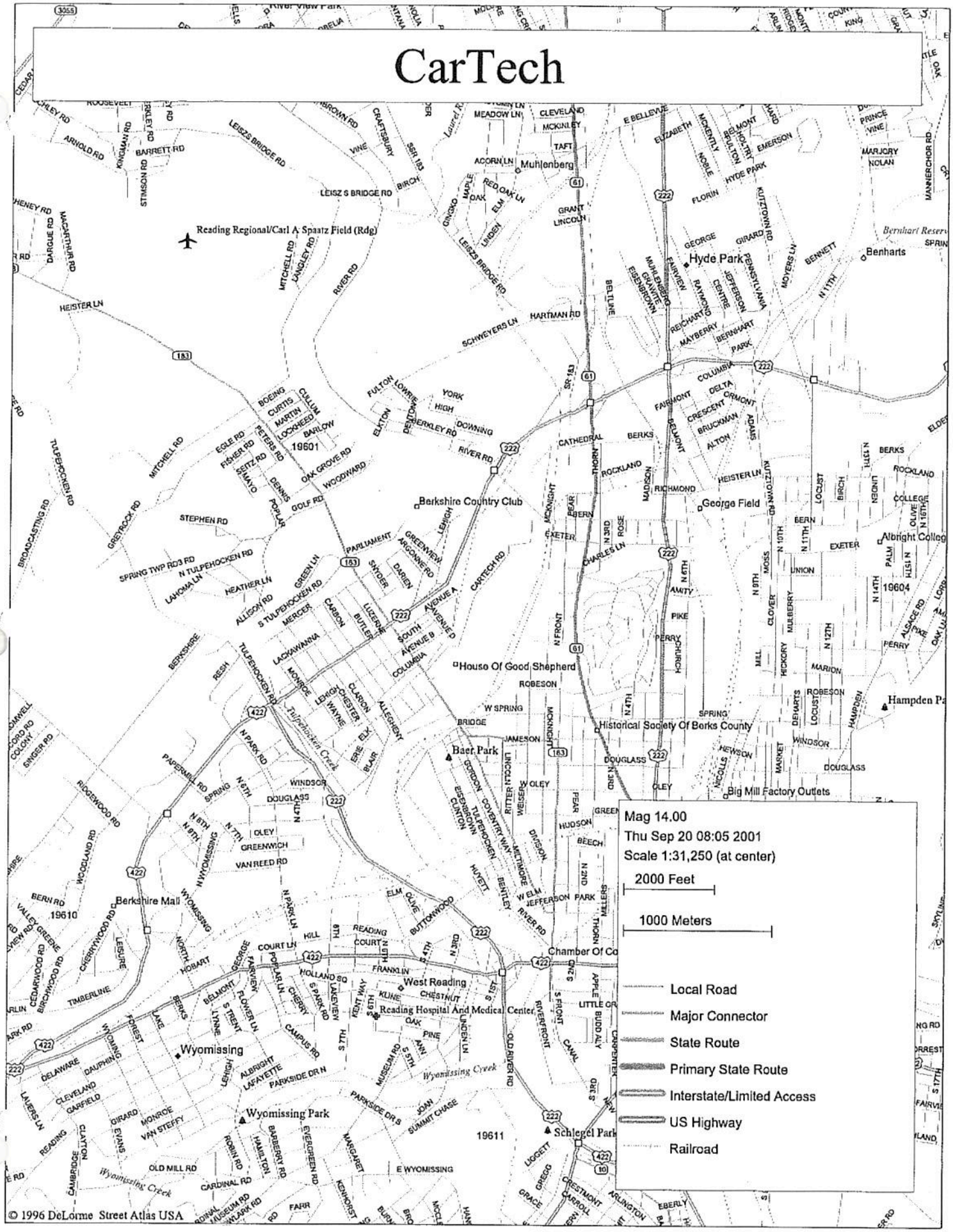
Apr. 28, 2018 - (Inspection Report - Residual Waste Landfill)

Apr. 05, 2019 - (Inspection Report - Residual Waste Landfill)

CarTech


Mag 11.00
Thu Sep 20 07:57 2001
Scale 1:250,000 (at center)
5 Miles
5 KM
Major Connector
State Route
Primary State Route
Interstate/Limited Access
Toll Highway
US Highway
Rest Area with facilities
© 1996 DeLorme Street Atlas USA

CarTech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Thu Sep 20 08:05 2001
Scale 1:31,250 (at center)
2000 Feet
1000 Meters
Local Road
Major Connector
State Route
Primary State Route
Interstate/Limited Access
US Highway
Railroad
Reading Regional/Carl A Spaatz Field (Rdg)
Muhlenberg
Hyde Park
Benharts
Berkshire Country Club
George Field
Albright College
House Of Good Shepherd
Historical Society Of Berks County
Baer Park
Big Mill Factory Outlets
Hampden Pa
Berkshire Mall
Chamber Of Co
West Reading
Reading Hospital And Medical Center
Wyomissing
Wyomissing Park
Schlegel Park
19601
19604
19610
19611
© 1996 DeLorme Street Atlas USA


Carpenter Technology Corp.
Reading Quad
Point-of-Compliance Wells
Allentown Fm
Hamburg Sequence
Richland Fm
Stonehenge Fm
Rickenback Fm
Epler Fm
Rickenback Fm
Millbach Fm
0
750
1,500
3,000
4,500
6,000
Feet


Carpenter Technology Corp.
Reading Quad
Point-of-Compliance Wells
89-07
92-04D
89-01
92-07
92-05D
0
62.5
125
250
375
500
Feet

5.0 GROUNDWATER SAMPLING DISCUSSION / RECOMMENDATIONS

Sampling Discussion:

Carpenter established a groundwater monitoring system in 1985 with five monitoring wells. Additional wells were installed and developed in 1987, 1988, 1989 and 1992. Currently, there is no up-gradient\background well for the West Shore area of this facility.

The June 25, 1993 RFI Report prompted Carpenter to begin operating a line of groundwater monitoring wells as part of a pilot recovery system. These pumping wells for this recovery system are: 85-03, 85-05, 89-02, 89-03 and 89-04. Also, five other groundwater monitoring wells were selected to function as Point of Compliance (POC) wells. These POC wells are: 89-01, 89-07, 92-04D, 92-05D and 92-07. These POC wells are monitored semi-annually to evaluate the effectiveness of the groundwater recovery system's performance. The performance evaluation for this system does not include the number of gallons pumped, well maintenance schedule, leachate collected, quantity of VOCs recovered, or electricity used while operating the recovery wells and waste water treatment plant (WWTP).

On May 6, 2019 DEP scheduled with Harry Pehote, Carpenter Technology's Environmental Engineer a day to collect the necessary groundwater samples from the POC wells with their consultant Spotts, Stevens & McCoy (SSM). This groundwater split sampling event occurred on May 28, 2019. DEP samples were transported to the DEP's Laboratory located at 2575 Interstate Drive, Harrisburg, PA 17110-9332. The groundwater samples were analyzed for VOAWW which includes the five VOCs: tetrachloroethene (PCE), trichloroethene (TCE), 1,1,1-trichloroethane (TCA), 1,1-dichloroethene (DCE), and cis 1,2-dichlorethene (CIS-DCE). DEP's lab results and trend plot graphs for this sampling event are provided in Appendix B and Appendix C respectfully.

As shown on the comparison chart in Appendix C, Carpenter's results were slightly lower than DEP's results. The results showed exceedances of: PCE in DEP's sample for well 92-05D and in both set of samples for well 92-07, and TCE in both set of samples for well 92-04D.

Comments and Recommendations:

1. The POC wells are off-set to the north from that of the pilot groundwater recovery well system. This off-set of POC wells makes it impossible to verify the effectiveness of the recovery system down-gradient for recovery wells 85-05, 89-02 and 89-04. It is recommended that Carpenter should install POC wells down-gradient from these three groundwater recovery wells so that the entire system could be evaluated. Located amongst recovery wells 89-02, 85-03 and 89-03 are POC wells 89-01, 92-05D and 92-07. Of these POC wells 92-07 is currently showing the greatest impacted from the VOC plume. The other two POC wells 89-07 and 92-04D are located north of the recovery wells; therefore, they are not accurately evaluating the effectiveness of the groundwater recovery well system. However, these two off-set POC wells are down-gradient to the leachate interceptor trench that runs along the slope of SWMU 21-1 but are not sampled for the correct parameters (chromium, cyanide, hexavalent chromium, fluoride, molybdenum, nickel, nitrates and selenium) for evaluating the performance of the trench.

2. During the RFI it was noted that groundwater monitoring wells 87-02D and 87-04D located up-gradient to recovery wells 85-05, 89-02 and 89-04 had groundwater results showing elevated levels of VOCs. A leaching well was listed in SWMU 21-3 with no mention of infiltration depth or groundwater sample results from beneath this area only soil boring samples. Unfortunately, there are no POC wells down-gradient of these recovery wells so the concentration of VOCs migrating past them are unknown. If there was a problem with using well 85-04 as a POC well, then a replacement POC well should have been installed. Furthermore, the well depths for monitoring wells 85-06, 85-07 and 85-08 were too shallow for the purpose of detecting VOCs flowing downslope within the deep carbonate bedrock aquifer. As stipulated by the CA permit these impacted POC wells are still showing that the northern half of this recovery system is out of compliance with those limits set by the EPA as shown on the table at the top of page three of Carpenter's CA permit modification (2Nov1998 - 31Oct2008).

3. When evaluating the performance of Carpenter's leachate interceptor trench/pilot groundwater recovery wells systems they cannot be fully determined based on the limited number of POC wells and groundwater parameters. During the past several years the PCE and TCE concentrations for the northern half of Carpenter's recovery system are still not showing any improvement other than from seasonal fluctuations. This could be an indication that the VOCs are below the depths of the recovery and POC wells.

4. Carpenter's consultant, Dames & Moore, recommended implementing a Corrective Measure Study (CMS) within the 1993 RFI. Therefore, it is recommended that EPA should have Carpenter conduct the long overdue CMS using, Dames & Moore, now AECOM. The purpose of the CMS would be to investigate the bedrock aquifer to better understand: the water flowing within the complex solution channels beneath this facility, to quantify the concentrations of PCE and TCE at the bottom of the bedrock aquifer and to provide some river sediment/surface water sampling at the shale/carbonate contact downstream from this facility. Since Carpenter has purchased the Dana Corporation's Reading operations property across the river from the recovery well system it is now feasible to install some deep bedrock wells on the East Shore side to determine if the VOCs are migrating down slope beneath the river. After verification of these components then the recovery system could be potentially enhanced as was envisioned back in 1993 with the goal of lowering these chlorinated compounds below those limits set by the EPA. A CMS was also proposed for SWMU 21-4 since the leachate trench is only three feet below ground surface along the downslope side of this SWMU.

6.0 RELEASE HISTORY

Previous investigations found numerous SWMUs contaminating the groundwater with a variety of contaminants. Additional known releases include the following: leaking solvent lines, liquid potassium hydroxide, kolene, sodium hydroxide, hydrofluoric acid leaks, spent nitric-hydrofluoric acid, hydrochloric acid leaks.

Past results indicated the following SWMUs were possible sources, but some other SWMUs might also be contributing to the groundwater degradation with the following contaminants:

SWMUs		Contaminants
15-1		Hexavalent Chromium and Total Chromium
15-2		Cyanide
18-1/18-3	VOCs	Carbon Tetrachloride, Tetrachloroethylene (PCE), Trichloroethylene (TCE), 1,1,1-Trichloroethane (TCA), Cis 1,2-Dichloroethane, 1,1-Dichloroethane
Areas 1&2 21-(1 thru 4)		Chromium, Cyanide, Fluoride, Hexavalent Chromium, Molybdenum, Nickel, Nitrates and Selenium
3		Chromium, Molybdenum, Sodium, Iron and Nickel

7.0 SUMMARY

As part of an on-going RCRA CA permit, Carpenter is required to continue collecting leachate from an interceptor trench and operate a line of pilot groundwater recovery wells located between several leaking SWMUs and the Schuylkill River.

The line of POC wells selected are down-gradient to only a couple of the recovery wells and therefore cannot effectively evaluate the performance of the entire system of recovery wells. A replacement POC well for 85-04 should have been installed along with an additional POC well down-gradient of recovery wells 85-05 and 89-04 and possibly three or four deep bedrock wells on the East Shore side of the river.

Somehow an Interim Final EI for groundwater was done 2/5/99 without fully understanding the bedrock aquifer. The CMS recommended by Dames & Moore in the 1993 RFI was never implemented.

DEP's May 28, 2019 lab results indicated slightly higher levels of VOCs then Carpenter's results.

The trend plots found in Appendix C indicates persistent groundwater contamination at the POC wells above the limits set by EPA. When comparing these groundwater results with the previous several years of results the VOCs concentrations remain relatively unchanged other than from seasonal fluctuations.

Regarding the Malcolm Pirnie, October 25, 2010 PENTOXSD simulation for Carpenter, EPA's request for clarification and Pirnie's clarification letter, there seems to be this assumption that the VOCs are discharging into the river at this location. In a block pattern carbonate environment with well-developed solution channels which exists beneath this facility will the PCE and TCE migrate downstream or downslope? Have any VOCs ever been detected at the three listed surface water/sediment monitoring locations? Were any sediment/surface water samples collected at the shale/carbonate contact downstream of this facility? In this constricted investigation area of the Schuylkill River is this the actual point where groundwater would be diffusing into the river or is the river recharging the bedrock aquifer in response to the recovery wells? The groundwater sample results are no longer showing elevated levels of TCA, DCE and

cis DCE along with the steady detections of PCE and TCE in the limited POC wells. The sample results used in this simulation were from only the POC wells that monitor just the northern half of the pilot groundwater recovery well system. What are the concentrations of VOCs migrating past the other groundwater recovery wells in the southern half of this pilot groundwater recovery well system? Will this simulation be expanded to cover all the other SWMUs located at this facility and to include all the other contaminants of concern that were identified within the 1993 RFI?

In the best interest of the environment a CMS should be accomplished along with an expansion of the interceptor trench/groundwater recovery systems to better capture and reduce all the chlorinated compounds below the limits set within Carpenter's CA permit.

In 2012 Carpenter purchased the former Dana Corporations 50 acres property across the Schuylkill River from the VOC plume / groundwater recovery system. If a CMS is implemented some of the deep bedrock wells could be installed along the opposing river bank to see if the VOC plume is migrating beneath the river. Also, river sediment samples should be collected at the shale/carbonate contact downstream from this facility.

As part of the groundwater recovery system's evaluation shouldn't Carpenter be required to log the number of gallons of groundwater pumped, leachate collected, electricity used, and an approximated quantity of VOCs recovered?

Dames & Moore indicated within the 1993 RFI that Carpenter acknowledged additional investigations were needed and more corrective measures would be necessary. These additional investigations and corrective measures would have been conducted and implemented during the CMS.

APPENDIX A

Comprehensive Groundwater Monitoring Evaluation Worksheet

Note: Information normally contained on this form has not changed since originally written. The EPA approved groundwater sampling and analysis plan is followed by the contracted groundwater sampling crew. Samples are representative of aquifer conditions. Please refer to the CME-1998 report on the former Carpenter Technology Corporation facility if specific information from this Worksheet is required.

Appendix B

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

3g
Berks Co

June 17, 2019

Mr. Sean T. McGowan
Manager – Environmental Affairs
101 Bern Street
Reading, PA 19601

Re: Carpenter Technology Corporation Groundwater Sampling Results PAD002344315
Reading, Berks County

2Q19

Dear Sean McGowan:

Spotts, Stevens & McCoy, Inc. and Department personnel collected split groundwater samples from your property on May 28, 2019 as part of EPA's GME sampling event. The samples collected by Department personnel were transported to and analyzed at the Department's Laboratory located at 2575 Interstate Drive, Harrisburg, PA 17110-9332.

Enclosed are copies of analysis from the groundwater samples collected from wells: MWs 89-01, 89-07, 92-04D, 92-05D and 92-07. The water was tested for Volatile Organic Chemicals. Also, a field blank was produced during the time period between the collection of groundwater from wells 92-05D and 89-01.

If you have any questions, please contact me at 717.705.4917.

Sincerely,

Kurt S. Fritz

Kurt S. Fritz
Geologic Specialist
Waste Management Program

Enclosures (6)

Date of Issue: 06/17/2019 04:02:31

DEP Bureau of Laboratories - Harrisburg
P.O. Box 1467
2575 Interstate Drive
Harrisburg, PA 17105-1467

Contact Phone Number: (717) 346-7200

NELAP - accredited by

NJ DEP - Laboratory Number: PA059
PA DEP LAP - DEP Lab ID: 22-00223

Analytical Report For
Land Recycling & Waste Management

Sample ID: 2358 696 **Date Collected:** 05/28/2019 11:05:00 AM **Lab Sample ID:** O2019003837 **Status:** Completed

Name of Sample Collector: Kurt S Fritz
Date Received: 05/29/2019

County: ~~NOT INDICATED~~ Berks **State:** PA
Municipality: ~~NOT INDICATED~~ Reading

Location: ~~NOT INDICATED~~ mw89-01
Reason: Routine Sampling
Project: ~~NOT INDICATED~~ Carpenter Technology
Suite: VOAWW
Matrix: Water

Stream Condition:

Test Codes / CAS # / Description	Reported Results	Date And Time Analyzed	Approved by	Test Method
630206 1,1,1,2-Tetrachloroethane	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
71556 1,1,1-Trichloroethane	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
79345 1,1,2,2-Tetrachloroethane	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
79005 1,1,2-Trichloroethane	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
75343 1,1-Dichloroethane	1.4 ug/L	05/29/2019 02:00 AM	DLY	EPA 624.1
75354 1,1-Dichloroethene	0.65 ug/L	05/29/2019 02:00 AM	DLY	EPA 624.1
563586 1,1-Dichloropropene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
87616 1,2,3-Trichlorobenzene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1

Sample ID: 2358 696 **Date Collected:** 05/28/2019 11:05:00 AM **Lab Sample ID:** O2019003837 **Status:** Completed

Test Codes / CAS#	Description	Reported Results	Date And Time Analyzed	Approved by	Test Method
96184	1,2,3-Trichloropropane	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
120821	1,2,4-Trichlorobenzene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
95636	1,2,4-Trimethylbenzene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
96128	1,2-Dibromo-3-chloropropane	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
106934	1,2-Dibromoethane	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
95501	1,2-Dichlorobenzene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
107062	1,2-Dichloroethane	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
78875	1,2-Dichloropropane	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
108678	1,3,5-Trimethylbenzene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
541731	1,3-Dichlorobenzene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
142289	1,3-Dichloropropane	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
106467	1,4-Dichlorobenzene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
594207	2,2-Dichloropropane	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
78933	2-Butanone	2.5 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
591786	2-Hexanone	2.5 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
99876	4-Isopropyltoluene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
108101	4-Methyl-2-pentanone	2.5 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
67641	Acetone	5.0 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
71432	Benzene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
108861	Bromobenzene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
74975	Bromochloromethane	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
75274	Bromodichloromethane	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
75252	Bromoform	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
74839	Bromomethane	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
75150	Carbon disulfide	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
56235	Carbon tetrachloride	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
108907	Chlorobenzene	2.0 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
75003	Chloroethane	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
75014	Chloroethene (vinyl chloride)	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
67663	Chloroform	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
74873	Chloromethane	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
156592	cis-1,2-Dichloroethene	2.8 ug/L	05/29/2019 02:00 AM	DLY	EPA 624.1
10061015	cis-1,3-Dichloropropene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
124481	Dibromochloromethane	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
74953	Dibromomethane	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
75718	Dichlorodifluoromethane	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1

Analytical Re For
Land Recycling & Waste Management

Sample ID: 2358 696 **Date Collected:** 05/28/2019 11:05:00 AM **Lab Sample ID:** O2019003837 **Status:** Completed

Test Codes / CAS # - Description	Reported Results	Date And Time Analyzed	Approved by	Test Method
75092 Dichloromethane	1.0 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
100414 Ethylbenzene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
87683 Hexachlorobutadiene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
98828 Isopropylbenzene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
108383 m/p-Xylenes	1.0 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
1634044 Methyl-tert-butyl Ether	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
91203 Naphthalene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
104518 n-Butylbenzene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
103651 n-Propylbenzene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
95498 o-Chlorotoluene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
95476 o-Xylene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
106434 p-Chlorotoluene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
98566 PCTFB	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
135988 Sec-Butylbenzene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
100425 Styrene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
75650 t-Butyl alcohol	5.0 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
540885 tert-Butyl Acetate	2.5 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
98066 Tert-Butylbenzene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
127184 Tetrachloroethene	2.9 ug/L	05/29/2019 02:00 AM	DLY	EPA 624.1
109999 Tetrahydrofuran	1.0 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
108883 Toluene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
1330207 Total Xylenes	0 ug/L	05/29/2019 02:00 AM	DLY	EPA 624.1
156605 trans-1,2-Dichloroethene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
10061026 trans-1,3-Dichloropropene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
79016 Trichloroethene	1.4 ug/L	05/29/2019 02:00 AM	DLY	EPA 624.1
75694 Trichlorofluoromethane	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
108054 Vinyl Acetate	1.0 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1

The results of the analyses provided in this laboratory report relate only to the sample(s) identified therein. Unless otherwise noted, the results presented on this laboratory report meet all requirements of the 2009 TNI standard. Sample was in acceptable condition when received by the Laboratory. Any exceptions are noted in the report.
* denotes tests that the laboratory is not accredited for

J - Indicates an estimated value, reported between Reporting Limit (RL) and Minimum Detection Limit (MDL).

Taru Upadhyay, Technical Director, Bureau of Laboratories

Sample ID: 2358 696 **Date Collected:** 05/28/2019 11:05:00 AM **Lab Sample ID:** O2019003837 **Status:** Completed

ORGANICS LABORATORY QUALIFIERS

U - Indicates analysis was performed for the compound but it was not detected. The sample quantitation limit is reported.

J - Indicates an estimated value, reported between Reporting Limit (RL) and Minimum Detection Limit (MDL).

N - Indicates presumptive evidence of a compound.

B - This flag is used when the analyte is found in the associated blank as well as in the sample.

E - This flag identifies compounds whose concentrations exceed the calibration range of the instrument for that specific analysis.

P - This flag is used with a target analyte when there is greater than a 40% difference between the results obtained from the primary and confirmation columns for dual column analysis methods (e.g. pesticides, triazines, PCBs, etc)

Q - This flag identifies the average of multiple results from multiple analyses, or the average of the averages of dual column analysis methods.

X - Non-target analytes co-elute with compound. Identification unable to be confirmed.

Date of Issue: 06/17/2019 04:02:59

DEP Bureau of Laboratories - Harrisburg
P.O. Box 1467
2575 Interstate Drive
Harrisburg, PA 17105-1467

Contact Phone Number: (717) 346-7200

NELAP - accredited by

NJ DEP - Laboratory Number: PA059
PA DEP LAP - DEP Lab ID: 22-00223

Analytical Report For
Land Recycling & Waste Management

Sample ID: 2358 697 **Date Collected:** 05/28/2019 01:01:00 PM **Lab Sample ID:** O2019003838 **Status:** Completed

Name of Sample Collector: Kurt S Fritz
Date Received: 05/29/2019

County: ~~NOT INDICATED~~ Berks **State:** PA
Municipality: ~~NOT INDICATED~~ Reading

Location: ~~NOT INDICATED~~ MW 89-07
Reason: Routine Sampling
Project: ~~NOT INDICATED~~ Carpenter Technology
Suite: VOAWW
Matrix: Water

Stream Condition:

Test Codes / CAS # - Description		Reported Results	Date And Time Analyzed	Approved by	Test Method
630206	1,1,1,2-Tetrachloroethane	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
71556	1,1,1-Trichloroethane	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
79345	1,1,2,2-Tetrachloroethane	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
79005	1,1,2-Trichloroethane	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
75343	1,1-Dichloroethane	0.64 ug/L	05/29/2019 02:00 AM	DLY	EPA 624.1
75354	1,1-Dichloroethene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
563586	1,1-Dichloropropene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
87616	1,2,3-Trichlorobenzene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1

Sample ID: 2358 697 **Date Collected:** 05/28/2019 01:01:00 PM **Lab Sample ID:** O2019003838 **Status:** Completed

Test Codes / CAS #	Description	Reported Results	Date And Time Analyzed	Approved by	Test Method
96184	1,2,3-Trichloropropane	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
120821	1,2,4-Trichlorobenzene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
95636	1,2,4-Trimethylbenzene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
96128	1,2-Dibromo-3-chloropropane	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
106934	1,2-Dibromoethane	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
95501	1,2-Dichlorobenzene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
107062	1,2-Dichloroethane	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
78875	1,2-Dichloropropane	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
108678	1,3,5-Trimethylbenzene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
541731	1,3-Dichlorobenzene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
142289	1,3-Dichloropropane	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
106467	1,4-Dichlorobenzene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
594207	2,2-Dichloropropane	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
78933	2-Butanone	2.5 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
591786	2-Hexanone	2.5 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
99876	4-Isopropyltoluene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
108101	4-Methyl-2-pentanone	2.5 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
67641	Acetone	5.0 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
71432	Benzene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
108861	Bromobenzene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
74975	Bromochloromethane	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
75274	Bromodichloromethane	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
75252	Bromoform	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
74839	Bromomethane	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
75150	Carbon disulfide	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
56235	Carbon tetrachloride	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
108907	Chlorobenzene	2.0 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
75003	Chloroethane	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
75014	Chloroethene (vinyl chloride)	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
67663	Chloroform	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
74873	Chloromethane	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
156592	cis-1,2-Dichloroethene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
10061015	cis-1,3-Dichloropropene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
124481	Dibromochloromethane	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
74953	Dibromomethane	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
75718	Dichlorodifluoromethane	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1

Sample ID: 2358 697 **Date Collected:** 05/28/2019 01:01:00 PM **Lab Sample ID:** O2019003838 **Status:** Completed

Test Codes / CAS # - Description	Reported Results	Date And Time Analyzed	Approved by	Test Method
75092 Dichloromethane	1.0 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
100414 Ethylbenzene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
87683 Hexachlorobutadiene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
98828 Isopropylbenzene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
108383 m/p-Xylenes	1.0 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
1634044 Methyl-tert-butyl Ether	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
91203 Naphthalene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
104518 n-Butylbenzene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
103651 n-Propylbenzene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
95498 o-Chlorotoluene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
95476 o-Xylene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
106434 p-Chlorotoluene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
98566 PCTFB	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
135988 Sec-Butylbenzene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
100425 Styrene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
75650 t-Butyl alcohol	5.0 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
540885 tert-Butyl Acetate	2.5 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
98066 Tert-Butylbenzene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
127184 Tetrachloroethene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
109999 Tetrahydrofuran	1.0 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
108883 Toluene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
1330207 Total Xylenes	0 ug/L	05/29/2019 02:00 AM	DLY	EPA 624.1
156605 trans-1,2-Dichloroethene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
10061026 trans-1,3-Dichloropropene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
79016 Trichloroethene	0.89 ug/L	05/29/2019 02:00 AM	DLY	EPA 624.1
75694 Trichlorofluoromethane	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
108054 Vinyl Acetate	1.0 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1

The results of the analyses provided in this laboratory report relate only to the sample(s) identified therein. Unless otherwise noted, the results presented on this laboratory report meet all requirements of the 2009 TNI standard. Sample was in acceptable condition when received by the Laboratory. Any exceptions are noted in the report.
* denotes tests that the laboratory is not accredited for

J - Indicates an estimated value, reported between Reporting Limit (RL) and Minimum Detection Limit (MDL).

Taru Upadhyay, Technical Director, Bureau of Laboratories

Sample ID: 2358 697 **Date Collected:** 05/28/2019 01:01:00 PM **Lab Sample ID:** O2019003838 **Status:** Completed

ORGANICS LABORATORY QUALIFIERS

U - Indicates analysis was performed for the compound but it was not detected. The sample quantitation limit is reported.

J - Indicates an estimated value, reported between Reporting Limit (RL) and Minimum Detection Limit (MDL).

N - Indicates presumptive evidence of a compound.

B - This flag is used when the analyte is found in the associated blank as well as in the sample.

E - This flag identifies compounds whose concentrations exceed the calibration range of the instrument for that specific analysis.

P - This flag is used with a target analyte when there is greater than a 40% difference between the results obtained from the primary and confirmation columns for dual column analysis methods (e.g. pesticides, triazines, PCBs, etc)

Q - This flag identifies the average of multiple results from multiple analyses, or the average of the averages of dual column analysis methods.

X - Non-target analytes co-elute with compound. Identification unable to be confirmed.

Date of Issue: 06/17/2019 04:02:55

DEP Bureau of Laboratories - Harrisburg
P.O. Box 1467
2575 Interstate Drive
Harrisburg, PA 17105-1467

Contact Phone Number: (717) 346-7200

NELAP - accredited by

NJ DEP - Laboratory Number: PA059
PA DEP LAP - DEP Lab ID: 22-00223

Analytical Report For
Land Recycling & Waste Management

Sample ID: 2358 698 Date Collected: 05/28/2019 12:15:00 PM Lab Sample ID: O2019003839 Status: Completed

Name of Sample Collector: Kurt S Fritz
Date Received: 05/29/2019

County: ~~NOT INDICATED~~ Berks State: PA
Municipality: ~~NOT INDICATED~~ Reading

Location: ~~NOT INDICATED~~ MW9Z-04D
Reason: Routine Sampling
Project: ~~NOT INDICATED~~ Carpenter Technology
Suite: VOAWW
Matrix: Water

Stream Condition:

Test Codes / CAS # - Description		Reported Results	Date And Time Analyzed	Approved by	Test Method
630206	1,1,1,2-Tetrachloroethane	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
71556	1,1,1-Trichloroethane	1.8 ug/L	05/30/2019 02:00 AM	DLY	EPA 624.1
79345	1,1,2,2-Tetrachloroethane	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
79005	1,1,2-Trichloroethane	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
75343	1,1-Dichloroethane	0.83 ug/L	05/30/2019 02:00 AM	DLY	EPA 624.1
75354	1,1-Dichloroethene	2.5 ug/L	05/30/2019 02:00 AM	DLY	EPA 624.1
563586	1,1-Dichloropropene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
87616	1,2,3-Trichlorobenzene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1

Analytical Report For
Land Recycling & Waste Management

Sample ID: 2358 698 **Date Collected:** 05/28/2019 12:15:00 PM **Lab Sample ID:** O2019003839 **Status:** Completed

Test Codes / CAS #	Description	Reported Results	Date And Time Analyzed	Approved by	Test Method
96184	1,2,3-Trichloropropane	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
120821	1,2,4-Trichlorobenzene	0.60 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
95636	1,2,4-Trimethylbenzene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
96128	1,2-Dibromo-3-chloropropane	0.60 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
106934	1,2-Dibromoethane	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
95501	1,2-Dichlorobenzene	0.60 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
107062	1,2-Dichloroethane	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
78875	1,2-Dichloropropane	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
108678	1,3,5-Trimethylbenzene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
541731	1,3-Dichlorobenzene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
142289	1,3-Dichloropropane	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
106467	1,4-Dichlorobenzene	0.60 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
594207	2,2-Dichloropropane	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
78933	2-Butanone	2.6 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
591786	2-Hexanone	2.5 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
99876	4-Isopropyltoluene	0.60 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
108101	4-Methyl-2-pentanone	2.5 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
67641	Acetone	5.0 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
71432	Benzene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
108861	Bromobenzene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
74975	Bromochloromethane	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
75274	Bromodichloromethane	0.60 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
75252	Bromoform	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
74839	Bromomethane	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
75150	Carbon disulfide	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
56235	Carbon tetrachloride	0.60 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
108907	Chlorobenzene	2.0 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
75003	Chloroethane	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
75014	Chloroethene (vinyl chloride)	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
67663	Chloroform	0.75 ug/L	05/30/2019 02:00 AM	DLY	EPA 624.1
74873	Chloromethane	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
156592	cis-1,2-Dichloroethene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
10061015	cis-1,3-Dichloropropene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
124481	Dibromochloromethane	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
74953	Dibromomethane	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
75718	Dichlorodifluoromethane	0.60 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1

Sample ID: 2358 698 **Date Collected:** 05/28/2019 12:15:00 PM **Lab Sample ID:** O2019003839 **Status:** Completed

Test Codes / CAS # - Description		Reported Results	Date And Time Analyzed	Approved by	Test Method
75092	Dichloromethane	1.0 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
100414	Ethylbenzene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
87683	Hexachlorobutadiene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
98828	Isopropylbenzene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
108383	m/p-Xylenes	1.0 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
1634044	Methyl-tert-butyl Ether	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
91203	Naphthalene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
104518	n-Butylbenzene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
103651	n-Propylbenzene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
95498	o-Chlorotoluene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
95476	o-Xylene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
106434	p-Chlorotoluene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
98566	PCTFB	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
135988	Sec-Butylbenzene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
100425	Styrene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
75650	t-Butyl alcohol	5.0 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
540885	tert-Butyl Acetate	2.5 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
98066	Tert-Butylbenzene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
127184	Tetrachloroethene	0.92 ug/L	05/30/2019 02:00 AM	DLY	EPA 624.1
109999	Tetrahydrofuran	1.0 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
108883	Toluene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
1330207	Total Xylenes	0 ug/L	05/30/2019 02:00 AM	DLY	EPA 624.1
156605	trans-1,2-Dichloroethene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
10061026	trans-1,3-Dichloropropene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
79016	Trichloroethene	9.1 ug/L	05/30/2019 02:00 AM	DLY	EPA 624.1
75694	Trichlorofluoromethane	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
108054	Vinyl Acetate	1.0 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1

The results of the analyses provided in this laboratory report relate only to the sample(s) identified therein. Unless otherwise noted, the results presented on this laboratory report meet all requirements of the 2009 TNI standard. Sample was in acceptable condition when received by the Laboratory. Any exceptions are noted in the report.
* denotes tests that the laboratory is not accredited for

J - Indicates an estimated value, reported between Reporting Limit (RL) and Minimum Detection Limit (MDL).

Taru Upadhyay, Technical Director, Bureau of Laboratories

Sample ID: 2358 698 **Date Collected:** 05/28/2019 12:15:00 PM **Lab Sample ID:** O2019003839 **Status:** Completed

ORGANICS LABORATORY QUALIFIERS

U - Indicates analysis was performed for the compound but it was not detected. The sample quantitation limit is reported.

J - Indicates an estimated value, reported between Reporting Limit (RL) and Minimum Detection Limit (MDL).

N - Indicates presumptive evidence of a compound.

B - This flag is used when the analyte is found in the associated blank as well as in the sample.

E - This flag identifies compounds whose concentrations exceed the calibration range of the instrument for that specific analysis.

P - This flag is used with a target analyte when there is greater than a 40% difference between the results obtained from the primary and confirmation columns for dual column analysis methods (e.g. pesticides, triazines, PCBs, etc)

Q - This flag identifies the average of multiple results from multiple analyses, or the average of the averages of dual column analysis methods.

X - Non-target analytes co-elute with compound. Identification unable to be confirmed.

Date of Issue: 06/17/2019 04:01:28

DEP Bureau of Laboratories - Harrisburg
P.O. Box 1467
2575 Interstate Drive
Harrisburg, PA 17105-1467

Contact Phone Number: (717) 346-7200

NELAP - accredited by

NJ DEP - Laboratory Number: PA059
PA DEP LAP - DEP Lab ID: 22-00223

Analytical Report For
Land Recycling & Waste Management

Sample ID: 2358 699 **Date Collected:** 05/28/2019 10:24:00 AM **Lab Sample ID:** O2019003840 **Status:** Completed

Name of Sample Collector: Kurt S Fritz
Date Received: 05/29/2019

County: ~~NOT INDICATED~~ Berks **State:** PA
Municipality: ~~NOT INDICATED~~ Reading

Location: ~~NOT INDICATED~~ MW 92-05D
Reason: Routine Sampling
Project: ~~NOT INDICATED~~ Carpenter Technology
Suite: VOAWW
Matrix: Water

Stream Condition:

Test Codes / CAS # - Description	Reported Results	Date And Time Analyzed	Approved by	Test Method
630206 1,1,1,2-Tetrachloroethane	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
71556 1,1,1-Trichloroethane	6.4 ug/L	05/30/2019 02:00 AM	DLY	EPA 624.1
79345 1,1,2,2-Tetrachloroethane	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
79005 1,1,2-Trichloroethane	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
75343 1,1-Dichloroethane	2.2 ug/L	05/30/2019 02:00 AM	DLY	EPA 624.1
75354 1,1-Dichloroethene	2.9 ug/L	05/30/2019 02:00 AM	DLY	EPA 624.1
563586 1,1-Dichloropropene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
87616 1,2,3-Trichlorobenzene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1

Analytical Report For
Land Recycling & Waste Management

Sample ID: 2358 699 **Date Collected:** 05/28/2019 10:24:00 AM **Lab Sample ID:** O2019003840 **Status:** Completed

Test Codes / CAS #	Description	Reported Results	Date And Time Analyzed	Approved by	Test Method
96184	1,2,3-Trichloropropane	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
120821	1,2,4-Trichlorobenzene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
95636	1,2,4-Trimethylbenzene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
96128	1,2-Dibromo-3-chloropropane	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
106934	1,2-Dibromoethane	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
95501	1,2-Dichlorobenzene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
107062	1,2-Dichloroethane	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
78875	1,2-Dichloropropane	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
108678	1,3,5-Trimethylbenzene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
541731	1,3-Dichlorobenzene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
142289	1,3-Dichloropropane	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
106467	1,4-Dichlorobenzene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
594207	2,2-Dichloropropane	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
78933	2-Butanone	2.5 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
591786	2-Hexanone	2.5 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
99876	4-Isopropyltoluene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
108101	4-Methyl-2-pentanone	2.5 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
67641	Acetone	5.0 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
71432	Benzene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
108861	Bromobenzene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
74975	Bromochloromethane	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
75274	Bromodichloromethane	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
75252	Bromoform	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
74839	Bromomethane	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
75150	Carbon disulfide	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
56235	Carbon tetrachloride	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
108907	Chlorobenzene	2.0 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
75003	Chloroethane	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
75014	Chloroethene (vinyl chloride)	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
67663	Chloroform	1.4 ug/L	05/30/2019 02:00 AM	DLY	EPA 624.1
74873	Chloromethane	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
156592	cis-1,2-Dichloroethene	4.8 ug/L	05/30/2019 02:00 AM	DLY	EPA 624.1
10061015	cis-1,3-Dichloropropene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
124481	Dibromochloromethane	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
74953	Dibromomethane	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
75718	Dichlorodifluoromethane	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1

Analytical R[illegible] For
Land Recycling & Waste Management

Sample ID: 2358 699 **Date Collected:** 05/28/2019 10:24:00 AM **Lab Sample ID:** O2019003840 **Status:** Completed

Test Codes / CAS # - Description		Reported Results	Date And Time Analyzed	Approved by	Test Method
75092	Dichloromethane	1.0 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
100414	Ethylbenzene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
87683	Hexachlorobutadiene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
98828	Isopropylbenzene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
108383	m/p-Xylenes	1.0 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
1634044	Methyl-tert-butyl Ether	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
91203	Naphthalene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
104518	n-Butylbenzene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
103651	n-Propylbenzene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
95498	o-Chlorotoluene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
95476	o-Xylene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
106434	p-Chlorotoluene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
98566	PCTFB	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
135988	Sec-Butylbenzene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
100425	Styrene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
75650	t-Butyl alcohol	5.0 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
540885	tert-Butyl Acetate	2.5 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
98066	Tert-Butylbenzene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
127184	Tetrachloroethene	6.1 ug/L	05/30/2019 02:00 AM	DLY	EPA 624.1
109999	Tetrahydrofuran	1.0 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
108883	Toluene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
1330207	Total Xylenes	0 ug/L	05/30/2019 02:00 AM	DLY	EPA 624.1
156605	trans-1,2-Dichloroethene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
10061026	trans-1,3-Dichloropropene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
79016	Trichloroethene	3.0 ug/L	05/30/2019 02:00 AM	DLY	EPA 624.1
75694	Trichlorofluoromethane	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
108054	Vinyl Acetate	1.0 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1

The results of the analyses provided in this laboratory report relate only to the sample(s) identified therein. Unless otherwise noted, the results presented on this laboratory report meet all requirements of the 2009 TNI standard. Sample was in acceptable condition when received by the Laboratory. Any exceptions are noted in the report.
* denotes tests that the laboratory is not accredited for

J - Indicates an estimated value, reported between Reporting Limit (RL) and Minimum Detection Limit (MDL).

Taru Upadhyay, Technical Director, Bureau of Laboratories

Sample ID: 2358 699 **Date Collected:** 05/28/2019 10:24:00 AM **Lab Sample ID:** O2019003840 **Status:** Completed

ORGANICS LABORATORY QUALIFIERS

U - Indicates analysis was performed for the compound but it was not detected. The sample quantitation limit is reported.

J - Indicates an estimated value, reported between Reporting Limit (RL) and Minimum Detection Limit (MDL).

N - Indicates presumptive evidence of a compound.

B - This flag is used when the analyte is found in the associated blank as well as in the sample.

E - This flag identifies compounds whose concentrations exceed the calibration range of the instrument for that specific analysis.

P - This flag is used with a target analyte when there is greater than a 40% difference between the results obtained from the primary and confirmation columns for dual column analysis methods (e.g. pesticides, triazines, PCBs, etc)

Q - This flag identifies the average of multiple results from multiple analyses, or the average of the averages of dual column analysis methods.

X - Non-target analytes co-elute with compound. Identification unable to be confirmed.

Date of Issue: 06/17/2019 04:02:52

DEP Bureau of Laboratories - Harrisburg
P.O. Box 1467
2575 Interstate Drive
Harrisburg, PA 17105-1467

Contact Phone Number: (717) 346-7200

NELAP - accredited by

NJ DEP - Laboratory Number: PA059
PA DEP LAP - DEP Lab ID: 22-00223

Analytical Report For
Land Recycling & Waste Management

Sample ID: 2358 670 **Date Collected:** 05/28/2019 09:23:00 AM **Lab Sample ID:** O2019003841 **Status:** Completed

Name of Sample Collector: Kurt S Fritz
Date Received: 05/29/2019
County: ~~NOT INDICATED~~ Berks **State:** PA
Municipality: ~~NOT INDICATED~~ Reading
Location: ~~NOT INDICATED~~ MW 92-07
Reason: Routine Sampling
Project: ~~NOT INDICATED~~ Carpenter Technology
Suite: VOAWW
Matrix: Water

Stream Condition:

Test Codes / CAS # / Description	Reported Results	Date And Time Analyzed	Approved by	Test Method
630206 1,1,1,2-Tetrachloroethane	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
71556 1,1,1-Trichloroethane	0.82 ug/L	05/30/2019 02:00 AM	DLY	EPA 624.1
79345 1,1,2,2-Tetrachloroethane	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
79005 1,1,2-Trichloroethane	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
75343 1,1-Dichloroethane	0.66 ug/L	05/30/2019 02:00 AM	DLY	EPA 624.1
75354 1,1-Dichloroethene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
563586 1,1-Dichloropropene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
87616 1,2,3-Trichlorobenzene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1

Analytical Report For
Land Recycling & Waste Management

Sample ID: 2358 670 **Date Collected:** 05/28/2019 09:23:00 AM **Lab Sample ID:** O2019003841 **Status:** Completed

Test Codes / CAS #	Description	Reported Results	Date And Time Analyzed	Approved by	Test Method
96184	1,2,3-Trichloropropane	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
120821	1,2,4-Trichlorobenzene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
95636	1,2,4-Trimethylbenzene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
96128	1,2-Dibromo-3-chloropropane	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
106934	1,2-Dibromoethane	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
95501	1,2-Dichlorobenzene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
107062	1,2-Dichloroethane	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
78875	1,2-Dichloropropane	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
108678	1,3,5-Trimethylbenzene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
541731	1,3-Dichlorobenzene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
142289	1,3-Dichloropropane	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
106467	1,4-Dichlorobenzene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
594207	2,2-Dichloropropane	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
78933	2-Butanone	2.5 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
591786	2-Hexanone	2.5 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
99876	4-Isopropyltoluene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
108101	4-Methyl-2-pentanone	2.5 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
67641	Acetone	5.0 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
71432	Benzene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
108861	Bromobenzene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
74975	Bromochloromethane	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
75274	Bromodichloromethane	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
75252	Bromoform	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
74839	Bromomethane	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
75150	Carbon disulfide	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
56235	Carbon tetrachloride	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
108907	Chlorobenzene	2.0 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
75003	Chloroethane	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
75014	Chloroethene (vinyl chloride)	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
67663	Chloroform	5.9 ug/L	05/30/2019 02:00 AM	DLY	EPA 624.1
74873	Chloromethane	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
156592	cis-1,2-Dichloroethene	4.1 ug/L	05/30/2019 02:00 AM	DLY	EPA 624.1
10061015	cis-1,3-Dichloropropene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
124481	Dibromochloromethane	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
74953	Dibromomethane	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
75718	Dichlorodifluoromethane	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1

Sample ID: 2358 670 **Date Collected:** 05/28/2019 09:23:00 AM **Lab Sample ID:** O2019003841 **Status:** Completed

Test Codes / CAS # - Description		Reported Results	Date And Time Analyzed	Approved by	Test Method
75092	Dichloromethane	1.0 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
100414	Ethylbenzene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
87683	Hexachlorobutadiene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
98828	Isopropylbenzene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
108383	m/p-Xylenes	1.0 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
1634044	Methyl-tert-butyl Ether	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
91203	Naphthalene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
104518	n-Butylbenzene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
103651	n-Propylbenzene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
95498	o-Chlorotoluene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
95476	o-Xylene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
106434	p-Chlorotoluene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
98566	PCTFB	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
135988	Sec-Butylbenzene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
100425	Styrene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
75650	t-Butyl alcohol	5.0 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
540885	tert-Butyl Acetate	2.5 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
98066	Tert-Butylbenzene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
127184	Tetrachloroethene	26.6 ug/L	05/30/2019 02:00 AM	DLY	EPA 624.1
109999	Tetrahydrofuran	1.0 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
108883	Toluene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
1330207	Total Xylenes	0 ug/L	05/30/2019 02:00 AM	DLY	EPA 624.1
156605	trans-1,2-Dichloroethene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
10061026	trans-1,3-Dichloropropene	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
79016	Trichloroethene	3.3 ug/L	05/30/2019 02:00 AM	DLY	EPA 624.1
75694	Trichlorofluoromethane	0.50 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1
108054	Vinyl Acetate	1.0 ug/L (U)	05/30/2019 02:00 AM	DLY	EPA 624.1

The results of the analyses provided in this laboratory report relate only to the sample(s) identified therein. Unless otherwise noted, the results presented on this laboratory report meet all requirements of the 2009 TNI standard. Sample was in acceptable condition when received by the Laboratory. Any exceptions are noted in the report.
* denotes tests that the laboratory is not accredited for

J - Indicates an estimated value, reported between Reporting Limit (RL) and Minimum Detection Limit (MDL).

Taru Upadhyay, Technical Director, Bureau of Laboratories

Sample ID: 2358 670 **Date Collected:** 05/28/2019 09:23:00 AM **Lab Sample ID:** O2019003841 **Status:** Completed

ORGANICS LABORATORY QUALIFIERS

U - Indicates analysis was performed for the compound but it was not detected. The sample quantitation limit is reported.

J - Indicates an estimated value, reported between Reporting Limit (RL) and Minimum Detection Limit (MDL).

N - Indicates presumptive evidence of a compound.

B - This flag is used when the analyte is found in the associated blank as well as in the sample.

E - This flag identifies compounds whose concentrations exceed the calibration range of the instrument for that specific analysis.

P - This flag is used with a target analyte when there is greater than a 40% difference between the results obtained from the primary and confirmation columns for dual column analysis methods (e.g. pesticides, triazines, PCBs, etc)

Q - This flag identifies the average of multiple results from multiple analyses, or the average of the averages of dual column analysis methods.

X - Non-target analytes co-elute with compound. Identification unable to be confirmed.

Date of Issue: 06/17/2019 04:01:29

DEP Bureau of Laboratories - Harrisburg
P.O. Box 1467
2575 Interstate Drive
Harrisburg, PA 17105-1467

Contact Phone Number: (717) 346-7200

NELAP - accredited by

NJ DEP - Laboratory Number: PA059
PA DEP LAP - DEP Lab ID: 22-00223

Analytical Report For
Land Recycling & Waste Management

Sample ID: 2358 671 **Date Collected:** 05/28/2019 10:40:00 AM **Lab Sample ID:** O2019003842 **Status:** Completed

Name of Sample Collector: Kurt S Fritz
Date Received: 05/29/2019

County: ~~NOT INDICATED~~ Berks **State:** PA
Municipality: ~~NOT INDICATED~~ Reading

Location: ~~NOT INDICATED~~ Field Blank
Reason: Routine Sampling
Project: ~~NOT INDICATED~~ Carpenter Technology
Suite: VOAWW
Matrix: Water

Stream Condition:

Test Codes / CAS # - Description	Reported Results	Date And Time Analyzed	Approved by	Test Method
630206 1,1,1,2-Tetrachloroethane	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
71556 1,1,1-Trichloroethane	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
79345 1,1,2,2-Tetrachloroethane	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
79005 1,1,2-Trichloroethane	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
75343 1,1-Dichloroethane	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
75354 1,1-Dichloroethene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
563586 1,1-Dichloropropene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
87616 1,2,3-Trichlorobenzene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1

Analytical Report For
Land Recycling & Waste Management

Sample ID: 2358 671 **Date Collected:** 05/28/2019 10:40:00 AM **Lab Sample ID:** O2019003842 **Status:** Completed

Test Codes / CAS #	Description	Reported Results	Date And Time Analyzed	Approved by	Test Method
96184	1,2,3-Trichloropropane	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
120821	1,2,4-Trichlorobenzene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
95636	1,2,4-Trimethylbenzene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
96128	1,2-Dibromo-3-chloropropane	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
106934	1,2-Dibromoethane	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
95501	1,2-Dichlorobenzene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
107062	1,2-Dichloroethane	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
78875	1,2-Dichloropropane	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
108678	1,3,5-Trimethylbenzene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
541731	1,3-Dichlorobenzene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
142289	1,3-Dichloropropane	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
106467	1,4-Dichlorobenzene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
594207	2,2-Dichloropropane	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
78933	2-Butanone	2.5 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
591786	2-Hexanone	2.5 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
99876	4-Isopropyltoluene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
108101	4-Methyl-2-pentanone	2.5 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
67641	Acetone	5.0 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
71432	Benzene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
108861	Bromobenzene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
74975	Bromochloromethane	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
75274	Bromodichloromethane	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
75252	Bromoform	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
74839	Bromomethane	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
75150	Carbon disulfide	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
56235	Carbon tetrachloride	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
108907	Chlorobenzene	2.0 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
75003	Chloroethane	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
75014	Chloroethene (vinyl chloride)	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
67663	Chloroform	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
74873	Chloromethane	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
156592	cis-1,2-Dichloroethene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
10061015	cis-1,3-Dichloropropene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
124481	Dibromochloromethane	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
74953	Dibromomethane	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
75718	Dichlorodifluoromethane	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1

Sample ID: 2358 671 **Date Collected:** 05/28/2019 10:40:00 AM **Lab Sample ID:** O2019003842 **Status:** Completed

Test Codes / CAS # - Description		Reported Results	Date And Time Analyzed	Approved by	Test Method
75092	Dichloromethane	1.0 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
100414	Ethylbenzene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
87683	Hexachlorobutadiene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
98828	Isopropylbenzene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
108383	m/p-Xylenes	1.0 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
1634044	Methyl-tert-butyl Ether	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
91203	Naphthalene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
104518	n-Butylbenzene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
103651	n-Propylbenzene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
95498	o-Chlorotoluene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
95476	o-Xylene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
106434	p-Chlorotoluene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
98566	PCTFB	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
135988	Sec-Butylbenzene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
100425	Styrene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
75650	t-Butyl alcohol	5.0 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
540885	tert-Butyl Acetate	2.5 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
98066	Tert-Butylbenzene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
127184	Tetrachloroethene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
109999	Tetrahydrofuran	1.0 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
108883	Toluene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
1330207	Total Xylenes	0 ug/L	05/29/2019 02:00 AM	DLY	EPA 624.1
156605	trans-1,2-Dichloroethene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
10061026	trans-1,3-Dichloropropene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
79016	Trichloroethene	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
75694	Trichlorofluoromethane	0.50 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1
108054	Vinyl Acetate	1.0 ug/L (U)	05/29/2019 02:00 AM	DLY	EPA 624.1

The results of the analyses provided in this laboratory report relate only to the sample(s) identified therein. Unless otherwise noted, the results presented on this laboratory report meet all requirements of the 2009 TNI standard. Sample was in acceptable condition when received by the Laboratory. Any exceptions are noted in the report.
* denotes tests that the laboratory is not accredited for

J - Indicates an estimated value, reported between Reporting Limit (RL) and Minimum Detection Limit (MDL).

Taru Upadhyay, Technical Director, Bureau of Laboratories

Sample ID: 2358 671 **Date Collected:** 05/28/2019 10:40:00 AM **Lab Sample ID:** O2019003842 **Status:** Completed

ORGANICS LABORATORY QUALIFIERS

U - Indicates analysis was performed for the compound but it was not detected. The sample quantitation limit is reported.

J - Indicates an estimated value, reported between Reporting Limit (RL) and Minimum Detection Limit (MDL).

N - Indicates presumptive evidence of a compound.

B - This flag is used when the analyte is found in the associated blank as well as in the sample.

E - This flag identifies compounds whose concentrations exceed the calibration range of the instrument for that specific analysis.

P - This flag is used with a target analyte when there is greater than a 40% difference between the results obtained from the primary and confirmation columns for dual column analysis methods (e.g. pesticides, triazines, PCBs, etc)

Q - This flag identifies the average of multiple results from multiple analyses, or the average of the averages of dual column analysis methods.

X - Non-target analytes co-elute with compound. Identification unable to be confirmed.

Carpenter Technology Corporation
Chemical Technology Group
EPA Lab Code: PA00963
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NJ Laboratory Certification ID#: PA002

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Chemical Analysis Report

Specimen ID	**19528-WE-011**	**Requestor**	Sean McGowan
Copies			

Sample Information

Description	West Shore Groundwater Monitoring Well
Location	West Shore Wells
Request ID	Trip Blank
Sampled	5/28/2019
Submitted	5/28/2019 2:46:47 PM
Reported	06/19/2019
Taken by	D.Kuchinski
Method	Grab
Volume	2x40mL

Comments:
Trip Blank prepared by TWH on 6/26/19. Semi-Annual sampling.

This analysis report was reviewed and approved by: Tim O'Neill

Carpenter Technology Corporation
R&D Chemical Laboratory
Volatile Organics Analysis Report

Sample Name: West Shore Well Trip Blank
Data File Name: 190528-WE-011.D
Date Acquired: 06/05/2019 15:25
Sample Multiplier: 1.0
Operator: TDO

Compound Name		Analysis Result	Units	LOQ
1,1-Dichloroethene	<	5.0	ug/L	5.0
cis-1,2-Dichloroethene	<	5.0	ug/L	5.0
1,1,1-Trichloroethane	<	5.0	ug/L	5.0
Trichloroethene	<	5.0	ug/L	5.0
Tetrachloroethene	<	5.0	ug/L	5.0

GC/MS analysis performed using EPA Method 624 and Limits of Quantitation (LOQ).

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Chemical Analysis Report

Specimen ID	**19528-WE-012**	**Requestor**	Sean McGowan
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Sample Information

Description	West Shore Groundwater Monitoring Well
Location	West Shore Wells
Request ID	Field Blank
Sampled	5/28/2019 1200
Submitted	5/28/2019 2:47:00 PM
Reported	06/19/2019
Taken by	D.Kuchinski
Method	Grab
Volume	2x40mL

Comments:
Trip Blank prepared by TWH on 6/26/19. Semi-Annual sampling.

This analysis report was reviewed and approved by: Tim O'Neil

Carpenter Technology Corporation
R&D Chemical Laboratory
Volatile Organics Analysis Report

Sample Name: West Shore Well Field Blank
Data File Name: 190528-WE-012.D
Date Acquired: 06/05/2019 15:47
Sample Multiplier: 1.0
Operator: TDO

Compound Name		Analysis Result	Units	LOQ
1,1-Dichloroethene	<	5.0	ug/L	5.0
cis-1,2-Dichloroethene	<	5.0	ug/L	5.0
1,1,1-Trichloroethane	<	5.0	ug/L	5.0
Trichloroethene	<	5.0	ug/L	5.0
Tetrachloroethene	<	5.0	ug/L	5.0

GC/MS analysis performed using EPA Method 624 and Limits of Quantitation (LOQ).

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Chemical Analysis Report

Specimen ID	**19528-WE-013**	**Requestor**	Sean McGowan
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Sample Information

Description	West Shore Groundwater Monitoring Well
Location	West Shore Wells
Request ID	Rinsate
Sampled	5/28/2019 1315
Submitted	5/28/2019 2:47:12 PM
Reported	06/19/2019
Taken by	D.Kuchinski
Method	Grab
Volume	2x40mL

Comments:
Trip Blank prepared by TWH on 6/26/19. Semi-Annual sampling.

This analysis report was reviewed and approved by: Tim Oswald

Carpenter Technology Corporation
R&D Chemical Laboratory
Volatile Organics Analysis Report

Sample Name: West Shore Well Rinsate
Data File Name: 190528-WE-013.D
Date Acquired: 06/05/2019 16:22
Sample Multiplier: 1.0
Operator: TDO

Compound Name		Analysis Result	Units	LOQ
1,1-Dichloroethene	<	5.0	ug/L	5.0
cis-1,2-Dichloroethene	<	5.0	ug/L	5.0
1,1,1-Trichloroethane	<	5.0	ug/L	5.0
Trichloroethene	<	5.0	ug/L	5.0
Tetrachloroethene	<	5.0	ug/L	5.0

GC/MS analysis performed using EPA Method 624 and Limits of Quantitation (LOQ).

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Chemical Analysis Report

Specimen ID	**19528-WE-014**	**Requestor**	Sean McGowan
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Sample Information

Description	West Shore Groundwater Monitoring Well
Location	West Shore Wells
Request ID	92-07
Sampled	5/28/2019 0923
Submitted	5/28/2019 2:47:44 PM
Reported	06/19/2019
Taken by	D.Kuchinski
Method	Grab
Volume	2x40mL

Comments:
Trip Blank prepared by TWH on 6/26/19. Semi-Annual sampling.

This analysis report was reviewed and approved by: Tim Oswald

Carpenter Technology Corporation
R&D Chemical Laboratory
Volatile Organics Analysis Report

Sample Name: West Shore Well 92-07
Data File Name: 190528-WE-014.D
Date Acquired: 06/05/2019 16:58
Sample Multiplier: 1.0
Operator: TDO

Compound Name		Analysis Result	Units	LOQ
1,1-Dichloroethene	<	5.0	ug/L	5.0
cis-1,2-Dichloroethene	<	5.0	ug/L	5.0
1,1,1-Trichloroethane	<	5.0	ug/L	5.0
Trichloroethene	<	5.0	ug/L	5.0
Tetrachloroethene		20.4	ug/L	5.0

GC/MS analysis performed using EPA Method 624 and Limits of Quantitation (LOQ).

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Chemical Analysis Report

Specimen ID	**19528-WE-015**	**Requestor**	Sean McGowan
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Sample Information

Description	West Shore Groundwater Monitoring Well
Location	West Shore Wells
Request ID	92-05D
Sampled	5/28/2019 1034
Submitted	5/28/2019 2:48:00 PM
Reported	06/19/2019
Taken by	D.Kuchinski
Method	Grab
Volume	2x40mL

Comments:
Trip Blank prepared by TWH on 6/26/19. Semi-Annual sampling.

This analysis report was reviewed and approved by: Tim O'Neill

Carpenter Technology Corporation
R&D Chemical Laboratory
Volatile Organics Analysis Report

Sample Name:	West Shore Well 92-05D
Data File Name:	190528-WE-015.D
Date Acquired:	06/05/2019 17:11
Sample Multiplier:	1.0
Operator:	TDO

Compound Name		Analysis Result	Units	LOQ
1,1-Dichloroethene	<	5.0	ug/L	5.0
cis-1,2-Dichloroethene	<	5.0	ug/L	5.0
1,1,1-Trichloroethane		5.9	ug/L	5.0
Trichloroethene	<	5.0	ug/L	5.0
Tetrachloroethene	<	5.0	ug/L	5.0

GC/MS analysis performed using EPA Method 624 and Limits of Quantitation (LOQ).

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Chemical Analysis Report

Specimen ID	**19528-WE-016**	**Requestor**	Sean McGowan
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Sample Information

Description	West Shore Groundwater Monitoring Well
Location	West Shore Wells
Request ID	89-01
Sampled	5/28/2019 1105
Submitted	5/28/2019 2:48:19 PM
Reported	06/19/2019
Taken by	D.Kuchinski
Method	Grab
Volume	2x40mL

Comments:
Trip Blank prepared by TWH on 6/26/19. Semi-Annual sampling.

This analysis report was reviewed and approved by: Tim Oswald

Carpenter Technology Corporation
R&D Chemical Laboratory
Volatile Organics Analysis Report

Sample Name: West Shore Well 89-01
Data File Name: 190528-WE-016.D
Date Acquired: 06/05/2019 17:38
Sample Multiplier: 1.0
Operator: TDO

Compound Name		Analysis Result	Units	LOQ
1,1-Dichloroethene	<	5.0	ug/L	5.0
cis-1,2-Dichloroethene	<	5.0	ug/L	5.0
1,1,1-Trichloroethane	<	5.0	ug/L	5.0
Trichloroethene	<	5.0	ug/L	5.0
Tetrachloroethene	<	5.0	ug/L	5.0

GC/MS analysis performed using EPA Method 624 and Limits of Quantitation (LOQ).

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Chemical Analysis Report

Specimen ID	**19528-WE-017**	**Requestor**	Sean McGowan
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Sample Information

Description	West Shore Groundwater Monitoring Well
Location	West Shore Wells
Request ID	92-04D
Sampled	5/28/2019 1215
Submitted	5/28/2019 2:48:34 PM
Reported	06/19/2019
Taken by	D.Kuchinski
Method	Grab
Volume	2x40mL

Comments:
Trip Blank prepared by TWH on 6/26/19. Semi-Annual sampling.

This analysis report was reviewed and approved by: Tim Oswald

Carpenter Technology Corporation
R&D Chemical Laboratory
Volatile Organics Analysis Report

Sample Name: West Shore Well 92-04D
Data File Name: 190528-WE-017.D
Date Acquired: 06/05/2019 18:04
Sample Multiplier: 1.0
Operator: TDO

Compound Name		Analysis Result	Units	LOQ
1,1-Dichloroethene	<	5.0	ug/L	5.0
cis-1,2-Dichloroethene	<	5.0	ug/L	5.0
1,1,1-Trichloroethane	<	5.0	ug/L	5.0
Trichloroethene		8.1	ug/L	5.0
Tetrachloroethene	<	5.0	ug/L	5.0

GC/MS analysis performed using EPA Method 624 and Limits of Quantitation (LOQ).

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Chemical Analysis Report

Specimen ID	**19528-WE-018**	**Requestor**	Sean McGowan
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Sample Information

Description	West Shore Groundwater Monitoring Well
Location	West Shore Wells
Request ID	89-07
Sampled	5/28/2019 1301
Submitted	5/28/2019 2:48:49 PM
Reported	06/19/2019
Taken by	D.Kuchinski
Method	Grab
Volume	2x40mL

Comments:
Trip Blank prepared by TWH on 6/26/19. Semi-Annual sampling.

This analysis report was reviewed and approved by: Tim Oswald

Carpenter Technology Corporation
R&D Chemical Laboratory
Volatile Organics Analysis Report

Sample Name: West Shore Well 89-07
Data File Name: 190528-WE-018.D
Date Acquired: 06/05/2019 18:31
Sample Multiplier: 1.0
Operator: TDO

Compound Name		Analysis Result	Units	LOQ
1,1-Dichloroethene	<	5.0	ug/L	5.0
cis-1,2-Dichloroethene	<	5.0	ug/L	5.0
1,1,1-Trichloroethane	<	5.0	ug/L	5.0
Trichloroethene	<	5.0	ug/L	5.0
Tetrachloroethene	<	5.0	ug/L	5.0

GC/MS analysis performed using EPA Method 624 and Limits of Quantitation (LOQ).

Carpenter Technology Corporation
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Chemical Analysis Report

Specimen ID	**19528-WE-019**	**Requestor**	Sean McGowan
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Sample Information

Description	West Shore Groundwater Monitoring Well
Location	West Shore Wells
Request ID	Duplicate
Sampled	5/28/2019
Submitted	5/28/2019 2:49:03 PM
Reported	06/19/2019
Taken by	D.Kuchinski
Method	Grab
Volume	2x40mL

Comments:
Trip Blank prepared by TWH on 6/26/19. Semi-Annual sampling.

This analysis report was reviewed and approved by: Tim Oswald

Carpenter Technology Corporation
R&D Chemical Laboratory
Volatile Organics Analysis Report

Sample Name: West Shore Duplicate
Data File Name: 190528-WE-019.D
Date Acquired: 06/05/2019 18:57
Sample Multiplier: 1.0
Operator: TDO

Compound Name		Analysis Result	Units	LOQ
1,1-Dichloroethene	<	5.0	ug/L	5.0
cis-1,2-Dichloroethene	<	5.0	ug/L	5.0
1,1,1-Trichloroethane	<	5.0	ug/L	5.0
Trichloroethene	<	5.0	ug/L	5.0
Tetrachloroethene		21.7	ug/L	5.0

GC/MS analysis performed using EPA Method 624 and Limits of Quantitation (LOQ).

Appendix C

GME - 2019
CARPENTER TECHNOLOGY CORPORATION
Sample Results Comparison for 5/28/2019 (2Q19)

	CarTech	DEP		CarTech	DEP
Well	92-05D	92-05D	MSCs	92-07	92-07
Military Time	10:24	10:24		9:23	9:23
1,1,1-TRICHLOROETHANE	5.9	6.4	200	< 5.0	0.82
1,1-DICHLOROETHENE	< 5.0	2.9	7	< 5.0	0.5 ND
CIS 1,2-DICHLORETHENE	< 5.0	4.8	70	<5.0	4.1
TETRACHLOROETHENE	< 5.0	6.1	5	20.4	26.6
TRICHLOROETHENE	< 5.0	3	5	< 5.0	3.3

Well	89-01	89-01		92-04D	92-04D
Military Time	11:05	11:05		12:15	12:15
1,1,1-TRICHLOROETHANE	< 5.0	0.5 ND	200	<5.0	1.8
1,1-DICHLOROETHENE	< 5.0	0.65	7	<5.0	2.5
CIS 1,2-DICHLORETHENE	< 5.0	2.8	70	<5.0	0.5 ND
TETRACHLOROETHENE	< 5.0	2.9	5	<5.0	0.92
TRICHLOROETHENE	< 5.0	1.4	5	8.1	9.1

Well	89-07	89-07		Field Blank	Field Blank
Military Time	13:01	13:01		12:00	10:40
1,1,1-TRICHLOROETHANE	<5.0	0.5 ND	200	<5.0	0.5 ND
1,1-DICHLOROETHENE	<5.0	0.5 ND	7	<5.0	0.5 ND
CIS 1,2-DICHLORETHENE	<5.0	0.5 ND	70	<5.0	0.5 ND
TETRACHLOROETHENE	<5.0	0.5 ND	5	<5.0	0.5 ND
TRICHLOROETHENE	<5.0	0.89	5	<5.0	0.5 ND

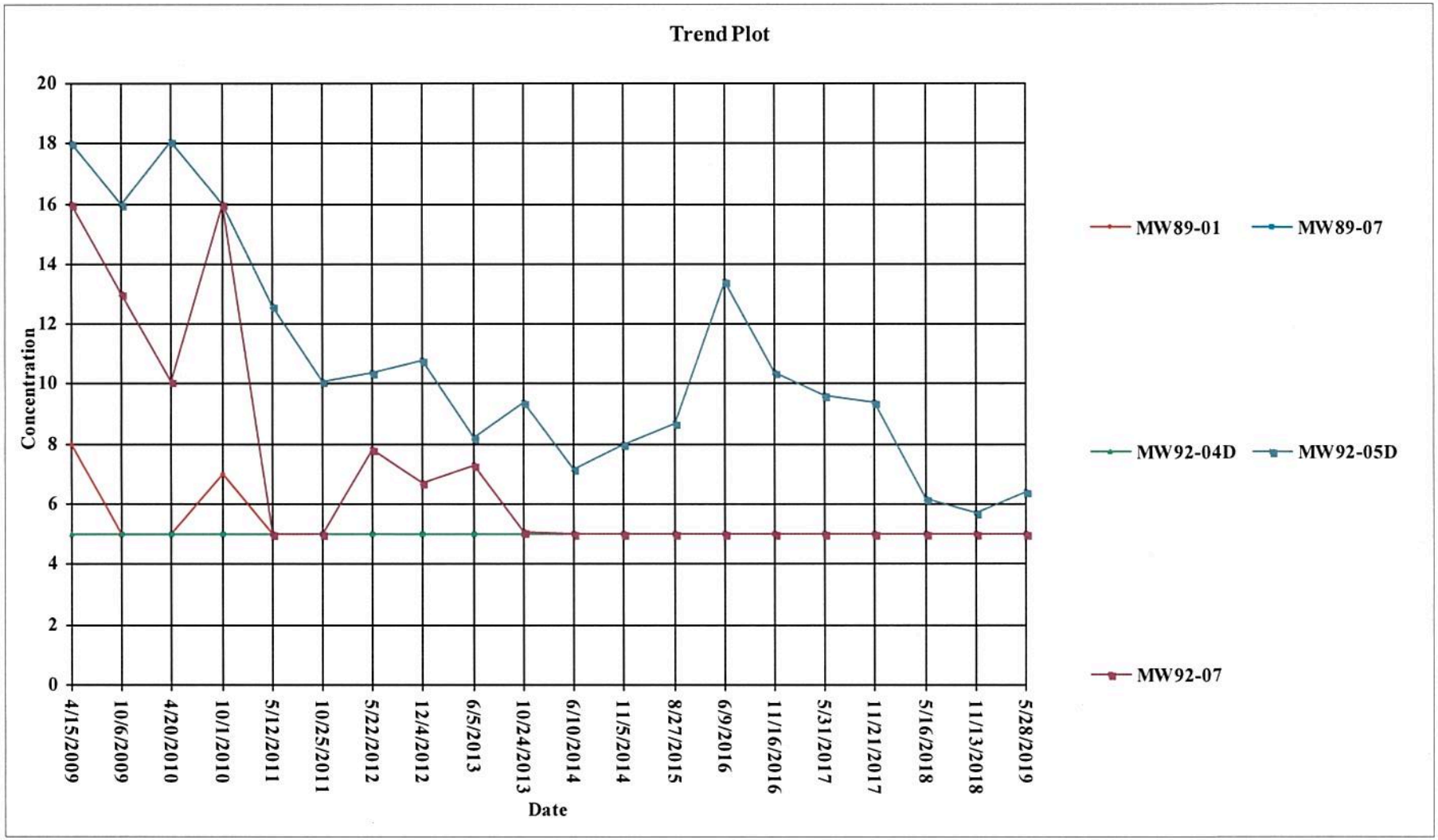
All concentrations in ug/l
Exceeds MSC

9/18/2019
10:43:10 AM

CARPENTER Specialty Alloys

CARPENTER TECHNOLOGY CORP.

Trend Plot For: 1,1,1-TRICHLOROETHANE (ug/l)

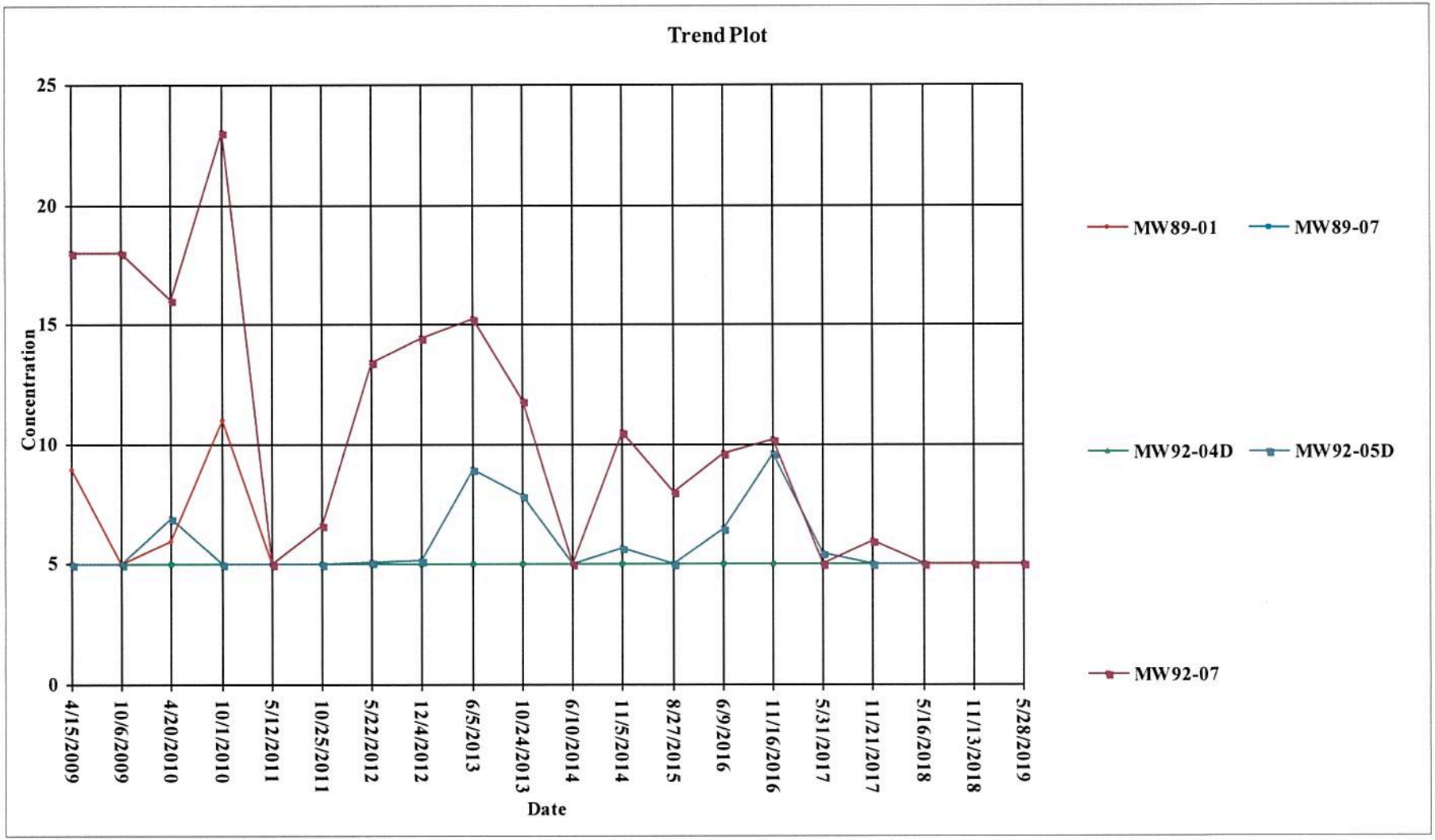


9/18/2019
10:44:17 AM

CARPENTER Specialty Alloys

CARPENTER TECHNOLOGY CORP.

Trend Plot For: 1,1-DICHLOROETHENE (ug/l)

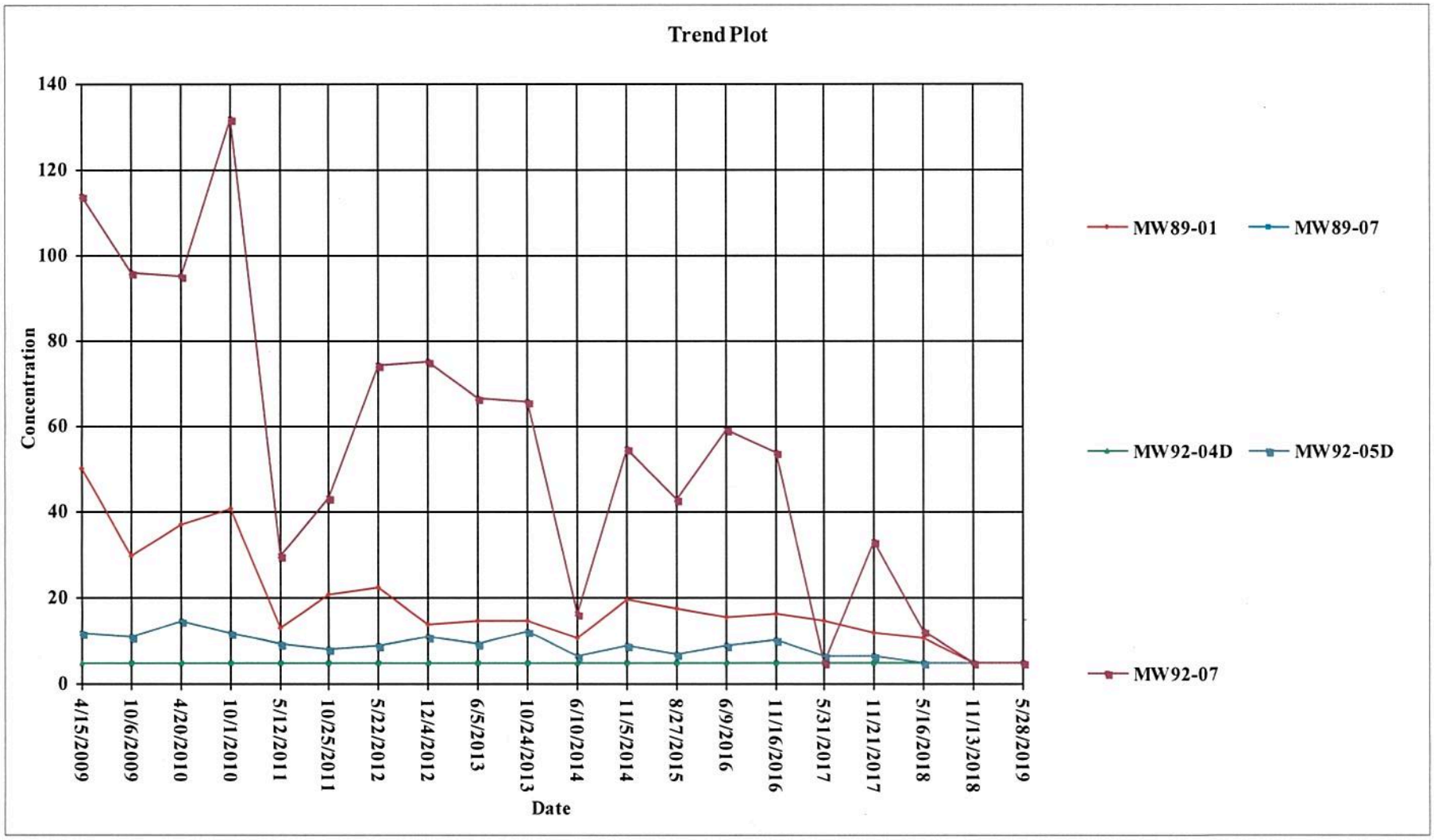


CARPENTER Specialty Alloys

CARPENTER TECHNOLOGY CORP.

9/18/2019
10:45:04 AM

Trend Plot For: CIS 1,2-DICHLORETHENE (ug/l)

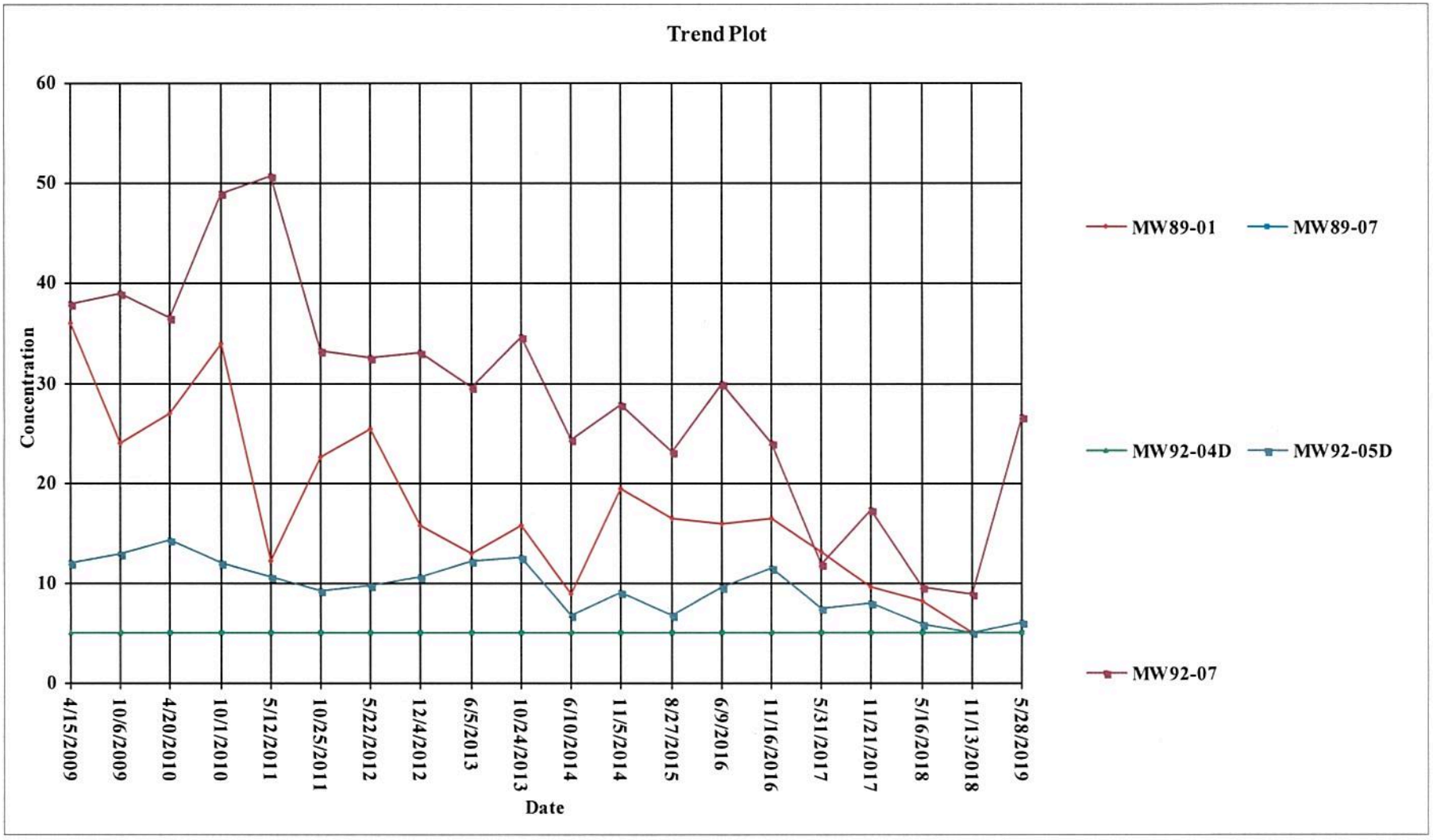


CARPENTER Specialty Alloys

CARPENTER TECHNOLOGY CORP.

9/18/2019
10:45:38 AM

Trend Plot For: TETRACHLOROETHENE (ug/l)



9/18/2019
10:46:05 AM

CARPENTER Specialty Alloys

CARPENTER TECHNOLOGY CORP.

Trend Plot For: TRICHLOROETHENE (ug/l)